CipherLab

User Guide

1500/1502 Barcode Scanner

Setup labels included.

Version 1.05

Copyright © 2008 ~ 2009 CIPHERLAB CO., LTD.
All rights reserved

The software contains proprietary information of CIPHERLAB CO., LTD.; it is provided under a license agreement containing restrictions on use and disclosure and is also protected by copyright law. Reverse engineering of the software is prohibited.

Due to continued product development this information may change without notice. The information and intellectual property contained herein is confidential between CIPHERLAB and the client and remains the exclusive property of CIPHERLAB CO., LTD. If you find any problems in the documentation, please report them to us in writing. CIPHERLAB does not warrant that this document is error-free.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of CIPHERLAB CO., LTD.

For product consultancy and technical support, please contact your local sales representative. Also, you may visit our web site for more information.

The CipherLab logo is a registered trademark of CIPHERLAB CO., LTD.

All brand, product and service, and trademark names are the property of their registered owners.

The editorial use of these names is for identification as well as to the benefit of the owners, with no intention of infringement.

CIPHERLAB CO., LTD.
Website: http://www.cipherlab.com

IMPORTANT NOTICES

FOR USA

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FOR CANADA

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numerique respecte les limites de bruits radioelectriques applicables aux appareils numeriques de Classe B prescrites dans la norme sur le material brouilleur: "Appareils Numeriques," NMB-003 edictee par l'Industrie.

FOR PRODUCT WITH LASER

Per FDA and IEC standards, the scan engines described in this manual are not given a laser classification. However, the following precautions should be observed:

CAUTION

This laser component emits FDA / IEC Class 2 laser light at the exit port. Do not stare into beam.

SAFETY PRECAUTIONS

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

- The use of any batteries or charging devices, which are not originally sold or manufactured by CipherLab, will void your warranty and may cause damage to human body or the product itself.
- DO NOT disassemble, incinerate or short circuit the battery.
- DO NOT expose the scanner or the battery to any flammable sources.
- For green-environment issue, it's important that batteries should be recycled in a proper way.
- Under no circumstances, internal components are self-serviceable.
- The charging and communication cradle uses an AC power adaptor. A socket outlet shall be installed near the equipment and shall be easily accessible. Make sure there is stable power supply for the mobile computer or its peripherals to operate properly.

CARE & MAINTENANCE

- Use a clean cloth to wipe dust off the scanning window and the body of the scanner as well as the cradle. DO NOT use/mix any bleach or cleaner.
- If you shall find the scanner malfunctioning, write down the specific scenario and consult your local sales representative.

RELEASE NOTES

Version	Date	Notes
1.05	Feb. 11, 2009	▸ Modified: 1.6 Scan Modes — add Alternate Mode to table ▸ New: 1.6.8 Alternate Mode — add setup label (100203) ▸ Modified: 1.8 Delay between Re-read — add Alternate Mode
1.04	Dec. 12, 2008	▸ New: 1502 with Laser scan engine (not supporting Auto-Sense Mode) ▸ Modified: 4.6 Multi-Barcode Editor — 4-digit length excludes prefix, suffix, length code, etc. ▸ Modified: 5.2.3 Define Data Criteria — Data length includes prefix, suffix, length code, etc.
1.03	Nov. 24, 2008	▸ New: Quick Start — Flowchart ▸ New: 1.3.2 Good Read LED Duration ▸ Modified: 4.6 Multi-Barcode Editor — Reset scan mode to "Laser" ▸ Modified: Host Serial Commands — adds D, E commands
1.02	Sep. 11, 2008	▸ Modified: section 1.10 Auto-Sense Mode — add setup labels for improving sensitivity
1.01	July 23, 2008	▸ Modified: section 1.2 Transmit Buffer — The use of transmit buffer is different from memory mode, and the latter is not supported by 1500 scanner!
1.00	May 26, 2008	Initial release

CONTENTS

IMPORTANT NOTICES ..... - 3 -
For USA ..... - 3 -
For Canada ..... - 3 -
For Product with Laser ..... - 4 -
Safety Precautions ..... - 4 -
Care & Maintenance ..... - 4 -
RELEASE NOTES ..... - 5 -
INTRODUCTION 1
Inside the Package 2
Product Highlights 2
QUICK START 3
Enter Configuration Mode 4
Exit Configuration Mode 4
Default Settings 5
Save User Settings as Defaults 5
Restore User Defaults 5
Restore System Defaults 5
Read a Setup Label 6
Configure Parameters 6
List the Current Settings 10
UNDERSTANDING THE BARCODE SCANNER 13
1.1 Power 13
1.2 Transmit Buffer 13
1.3 LED Indicator 14
1.3.1 Good Read LED 14
1.3.2 Good Read LED Duration 14
1.4 Beeper 16
1.4.1 Beeper Volume 16
1.4.2 Good Read Beep 17
1.5 Send “NR” to Host 18
1.6 Scan Modes 19
1.6.1 Continuous Mode 20
1.6.2 Test Mode 21
1.6.3 Laser Mode 21
1.6.4 Auto Off Mode 21
1.6.5 Auto Power Off Mode 22
1.6.6 Aiming Mode 22
1.6.7 Multi-Barcode Mode 23
1.6.8 Alternate Mode 23
1.7 Scanning Timeout 24

1.8 Delay between Re-read 25
1.9 Effective Decoding Area 26
1.9.1 Positioning Window 26
1.9.2 Adjusting Window 26
1.10 Auto-Sense Mode (1500 Only) 28
1.11 Negative Barcodes 29
1.12 Symbologies Supported 29
1.12.1 Read Redundancy for All Symblogies 30
1.12.2 Addon Security for UPC/EAN Barcodes 31
SELECTING OUTPUT INTERFACE 33
2.1 Keyboard Wedge 34
2.1.1 Activate Keyboard Wedge & Select Keyboard Type 34
2.1.2 Keyboard Settings 35
2.1.3 Inter-Character Delay 41
2.1.4 Inter-Function Delay 41
2.2 RS-232 42
2.2.1 Activate RS-232 Interface 42
2.2.2 Baud Rate 42
2.2.3 Data Bits 43
2.2.4 Parity 43
2.2.5 Stop Bit 44
2.2.6 Flow Control 44
2.2.7 Inter-Character Delay 45
2.2.8 Inter-Function Delay 45
2.2.9 ACK/NAK Timeout 46
2.3 Wand Emulation 47
2.3.1 Activate Wand Emulation 47
2.3.2 Normal State 47
2.3.3 Bar State 47
2.3.4 Module Time 48
2.3.5 Margin Time 49
CHANGING SYMBOLOGY SETTINGS 51
3.1 Codabar 52
3.1.1 Start/Stop Characters Selection 52
3.1.2 Start/Stop Transmission 53
3.1.3 CLSI Conversion 53
3.2 Code 25 – Industrial 25 54
3.2.1 Start/Stop Pattern Selection 54
3.2.2 Checksum Verification 55
3.2.3 Checksum Transmission 55
3.2.4 Code Length Qualification 56
3.3 Code 25 – Interleaved 25 57
3.3.1 Start/Stop Pattern Selection 57
3.3.2 Checksum Verification 58
3.3.3 Checksum Transmission 58
3.3.4 Code Length Qualification 59
3.4 Code 25 – Matrix 25 60
3.4.1 Start/Stop Pattern Selection 60

3.4.2 Checksum Verification 61
3.4.3 Checksum Transmission 61
3.4.4 Code Length Qualification 62
3.5 Code 39 63
3.5.1 Start/Stop Transmission 63
3.5.2 Checksum Verification 63
3.5.3 Checksum Transmission 64
3.5.4 Standard/Full ASCII Code 39 64
3.6 Code 93 65
3.7 Code 128 65
3.8 EAN-8 66
3.8.1 Convert to EAN-13 67
3.8.2 Checksum Transmission 67
3.9 EAN-13 68
3.9.1 ISBN Conversion 69
3.9.2 ISSN Conversion 69
3.9.3 Checksum Transmission 69
3.10 EAN-128 70
3.10.1 Code ID Transmission 70
3.10.2 Field Separator (GS Character) 70
3.11 ISBT 128 71
3.12 MSI 72
3.12.1 Checksum Verification 72
3.12.2 Checksum Transmission 73
3.12.3 Code Length Qualification 74
3.13 French Pharmacode 75
3.13.1 Checksum Transmission 75
3.14 Italian Pharmacode 76
3.14.1 Checksum Transmission 76
3.15 Plessey 77
3.15.1 Convert to UK Plessey 77
3.15.2 Checksum Transmission 77
3.16 RSS Family 78
3.16.1 Code ID Selection 78
3.16.2 RSS-14 78
3.16.3 RSS Expanded 79
3.16.4 RSS Limited 80
3.17 Telepen 82
3.17.1 Telepen Output – Full ASCII/Numeric 82
3.18 UPC-A 83
3.18.1 Convert to EAN-13 84
3.18.2 System Number Transmission 84
3.18.3 Checksum Transmission 84
3.19 UPC-E 85
3.19.1 System Number Selection 86
3.19.2 Convert to UPC-A 86
3.19.3 System Number Transmission 87
3.19.4 Checksum Transmission 87

DEFINING OUTPUT FORMAT 89
4.1 Letter Case 89
4.2 Character Substitution 90
4.2.1 Select a Set for Character Substituion 90
4.2.2 Symbologies for Character Substitution (All 3 Sets) 91
4.3 Prefix/Suffix Code 96
4.4 Code ID 97
4.4.1 Select Pre-defined Code ID 97
4.4.2 Change Code ID 98
4.4.3 Clear Code ID Settings 100
4.5 Length Code 101
4.6 Multi-Barcode Editor 104
4.6.1 Edit a Concatenation of Barcodes 105
4.6.2 Activate the Concatenation of Barcodes 106
APPLYING FORMATS FOR DATA EDITING 107
5.1 Format Selection 108
5.1.1 Activate Editing Formats 108
5.1.2 Exclusive Data Editing 109
5.2 Editing Format 110
5.2.1 Select Format to Configure 111
5.2.2 Restore Default Format 112
5.2.3 Define Data Criteria 113
5.2.4 Divide Data into Fields 116
5.2.5 Field Settings 118
5.2.6 Field Transmission Sequence 124
5.3 Programming Examples 126
5.3.1 Example I 126
5.3.2 Example II 127
SPECIFICATIONS 129
UPGRADING FIRMWARE 131
HOST SERIAL COMMANDS 133
Serial Commands 133
Example 134
KEYBOARD WEDGE TABLE 135
Key Type 135
Key Status 136
User-defined Scan Code 136
NUMERAL SYSTEMS 137
Decimal System 137
Hexadecimal System 138
ASCII Table 139

INTRODUCTION

CipherLab's new small-form-factor 1500 Series Barcode Scanners are specifically designed to answer your mobile demands. The tethered handheld scanners are designed to help accelerate productivity while lowering the total cost of ownership. Intensive data collection jobs are made easier with fast, accurate barcode scanning in various working environments, especially in small businesses.

Owing to the slim, ergonomic design, extremely low power consumption, and powerful decoding capability, CipherLab Barcode Scanners are the best choice for the following applications –

- Receiving in Retail
- Product labeling & Tracking
- Shelf Product Replenishment
- Mobile Point of Sale (POS)
- Mobile Inventory Management
- Order Picking & Staging
- Work-In-Process Tracking
- Material Flow Control
- Transportation & Distribution
- Warehousing
- Asset Management

This manual contains information on operating the scanner and using its features. We recommend you to keep one copy of the manual at hand for quick reference or maintenance purposes. To avoid any improper disposal or operation, please read the manual thoroughly before use.

Thank you for choosing CipherLab products!

INSIDE THE PACKAGE

The items included in the package may be different, depending on your order. Rich choices of output interfaces are available for you to enhance the total performance of the scanner. Refer to product specifications.

Save the box and packaging material for future use in case you need to store or ship the scanner.

- Barcode Scanner: 1500 or 1502
- Manual & Driver CD

Note: (1) You will need to purchase one or more interface cable separately. For USB Virtual COM (Part #308), find the associated driver on the CD.
(2) The Manual & Driver CD includes this manual, Windows-based *ScanMaster* software for configuration, as well as 308 driver.

PRODUCT HIGHLIGHTS

- Small-form-factor and built tough to survive drop test
- Extremely low power consumption
- Firmware upgradeable
- Supports most popular barcode symbologies, including Reduced Space Symbology (RSS)
- Supports negative barcodes
- Supports seven scan modes, including Aiming Mode and Multi-Barcode Mode
- User feedback via LED indicator and beeper
- Beeping tone and duration programmable for Good Read
- Provides choices of output interfaces, including RS-232, Keyboard Wedge, and Wand Emulation.
- Programmable parameters include data output format, editing format, symbologies, etc.

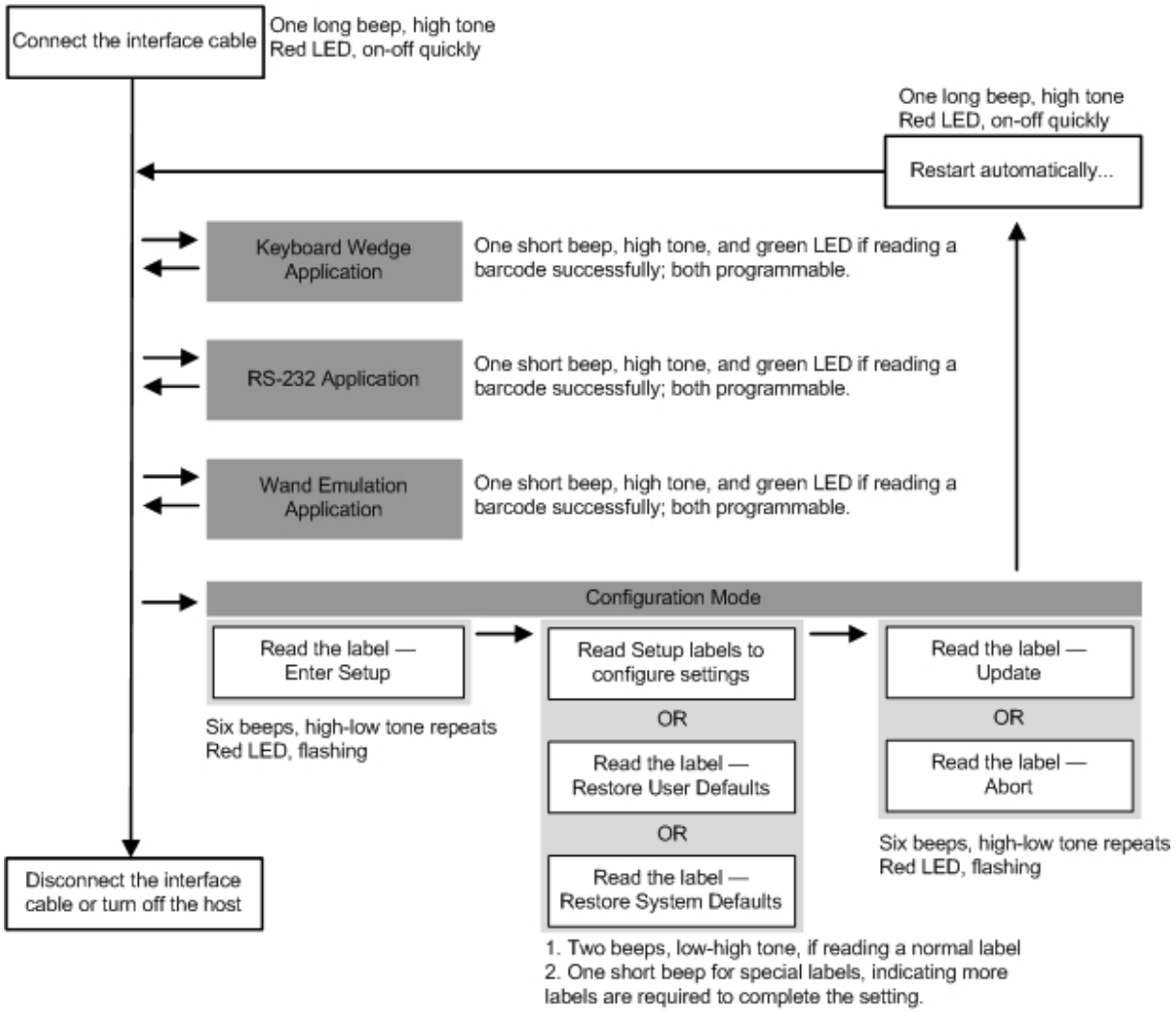
Enter Setup

QUICK START

The configuration of the scanner can be done by reading the setup labels contained in this manual or via the *ScanMaster* software.

This section describes the procedure of configuring the scanner by reading the setup barcodes and provides some examples for demonstration.

Note: If RS-232 is selected for output interface, the host can directly send serial commands to configure the scanner.
For example, run HyperTerminal.exe and type the 6-digit command located under each setup label. Refer to Appendix II Host Serial Commands.


Connect the interface cable
One long beep, high tone
Red LED, on-off quickly
One long beep, high tone
Red LED, on-off quickly
Restart automatically...
Keyboard Wedge Application
One short beep, high tone, and green LED if reading a barcode successfully; both programmable.
RS-232 Application
One short beep, high tone, and green LED if reading a barcode successfully; both programmable.
Wand Emulation Application
One short beep, high tone, and green LED if reading a barcode successfully; both programmable.
Configuration Mode
Read the label — Enter Setup
Six beeps, high-low tone repeats
Red LED, flashing
Read Setup labels to configure settings
OR
Read the label — Restore User Defaults
OR
Read the label — Restore System Defaults
Read the label — Update
OR
Read the label — Abort
Six beeps, high-low tone repeats
Red LED, flashing
Disconnect the interface cable or turn off the host
1. Two beeps, low-high tone, if reading a normal label
2. One short beep for special labels, indicating more labels are required to complete the setting.

ENTER CONFIGURATION MODE

For the scanner to enter the configuration mode, you must have it read the "Enter Setup" label, which can be located at the bottom of almost every even page of this manual.

- The scanner will respond with six beeps and its LED indicator will become flashing red after reading the label.

Enter Setup

For configuring scanner parameters, see “Read a Setup Label” below.

EXIT CONFIGURATION MODE

For the scanner to exit the configuration mode, you must have it read the “Update” label, which can be located at the bottom of almost every odd page of this manual. If you want to exit the configuration mode without saving any changes, have the scanner read the “Abort” label instead.

- Just like reading the “Enter Setup” label, the scanner will respond with six beeps and its LED indicator will become flashing red after reading the label. Wait for a few seconds for the scanner to restart itself.

Update

Abort

Enter Setup

DEFAULT SETTINGS

SAVE USER SETTINGS AS DEFAULTS

For the scanner to keep the customized settings as user defaults, you must have it read the "Save as User Defaults" label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the "Update" label, the current settings will be saved as user defaults.

Save as User Defaults

109986

RESTORE USER DEFAULTS

For the scanner to restore the user defaults, which you have saved earlier, you must have it read the "Restore User Defaults" label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the "Update" label, all the parameters of the scanner will return to their customized values.

Restore User Defaults

109987

RESTORE SYSTEM DEFAULTS

For the scanner to restore the factory defaults, you must have it read the "Restore System Defaults" label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the "Update" label, all the parameters of the scanner will return to their default values.

Restore System Defaults

109993

Note: The system default value (if there is) for each setting is indicated by an asterisk "*".

Update

READ A SETUP LABEL

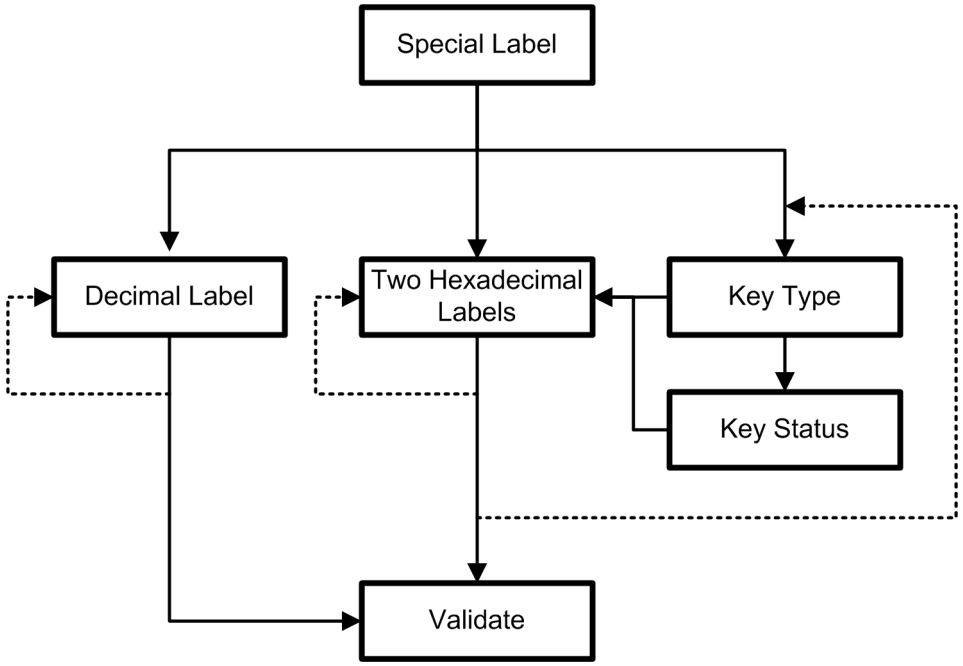
CONFIGURE PARAMETERS

For most of the scanner parameters, only one read is required to set them to new values. The scanner will respond with two beeps when each parameter is set successfully.

But for a number of special parameters, multiple reads are required to complete the setting. In this case, the scanner will respond with a short beep to indicate it needs to read more setup labels. These special parameters may require reading one or more setup labels, such as

- Numeric labels, say, for keyboard type, inter-character delay, length qualification
- Hexadecimal labels, say, for character strings as prefix, suffix, etc.
- When "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to change key status when "Normal Key" is selected for Key Type.

To complete the configuration of these special parameters, it requires reading the "Validate" label, and the scanner will respond with two beeps (low-high tone) to indicate the input values are validated.



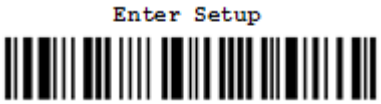
Enter Setup

The example below shows how to save your settings as "User Default" so that you may restore user defaults at a later time:

Steps	Action	User Feedback if Successful
1	Power on the scanner…	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode… Enter Setup 	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will be flashing red.
3	Read a Setup label… For example, *Enable Industrial 25 100307 Save as User Default 109986	The scanner will respond with two beeps (low-high tone) if reading a normal label.
4	Exit the Configuration Mode…	Same as for *Enter the Configuration Mode*.
	Update 109999 OR Abort 109998	
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.
*	When any configuration error occurs...	The scanner will respond with one long beep (low tone).

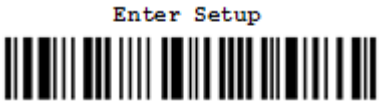
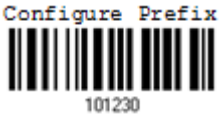
Update

The example below shows how to set numeric parameters:

Steps	Action	User Feedback if Successful
1	Power on the scanner...	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode… 	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become flashing red.
3	Read a Setup label... For example, **Normal label** **Normal label** **Special label** **Decimal label or labels**	The scanner will respond with one short beep if reading a special label such as "Max. Length", indicating the setup requires reading more labels. Read the "Decimal Value" label(s). ▸ Refer to Appendix IV "Decimal System" The scanner will respond with two beeps (low-high tone) when the input values are validated.
4	Exit the Configuration Mode…	Same as for *Enter the Configuration Mode*.
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.

Enter Setup

The example below shows how to set string parameters:

Steps	Action	User Feedback if Successful
1	Power on the scanner...	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode… 	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become flashing red.
3	Read a Setup label... For example, **Special label** 	The scanner will respond with one short beep if reading a special label such as "Prefix Code", indicating the setup requires reading more labels.
		When "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to change key status when "Normal Key" is selected for Key Type. ▸ Refer to Appendix III
	Hexadecimal labels	Read the "Hexadecimal Value" labels for the desired character string. For example, read "2" and "B" for the scanner to prefix the character "+". ▸ Refer to Appendix IV "Hexadecimal System"
		The scanner will respond with two beeps (low-high tone) when the input values are validated.
4	Exit the Configuration Mode…	Same as for *Enter the Configuration Mode*.
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.

Update

LIST THE CURRENT SETTINGS

The current settings of all scanner parameters can be sent, via RS-232, to the host computer for user inspection. The listing includes ten pages as shown below. You can select the page of interest by having the scanner read the "List Page x" label. The scanner will respond with two beeps (low-high tone) and send the selected page to the host immediately.

List Page 1

109950

List settings regarding Interface, Buzzer, and Other Scanner Parameters

List Page 2

109951

List settings regarding Prefix, Postfix, and Length Code Setting

List Page 3

109952

List settings regarding Code ID

List Page 4

109953

List settings regarding: Readable Symbologies

List Page 5

109954

List settings regarding Symbology Parameters (1/3)

List Page 6

109955

List settings regarding Symbology Parameters (2/3)

List Page 7

109956

List settings regarding Symbology Parameters (3/3)

Enter Setup

List Page 8

List settings regarding Editing Format 1

List Page 9

List settings regarding Editing Format 2

List Page 10

List settings regarding Editing Format 3

List Page 11

List settings regarding Editing Format 4

List Page 12

List settings regarding Editing Format 5

Update

Enter Setup

Chapter 1

UNDERSTANDING THE BARCODE SCANNER

This chapter explains the features and usage of the barcode scanner.

IN THIS CHAPTER

1.1 Power 13
1.2 Transmit Buffer 13
1.3 LED Indicator 14
1.4 Beeper 16
1.5 Send "NR" to Host 18
1.6 Scan Modes 19
1.7 Scanner Time-out 24
1.8 Delay between Re-read 25
1.9 Effective Decoding Area 26
1.10 Auto-Sense Mode 28
1.11 Negative Barcodes 29
1.12 Symbologies Supported 29

1.1 POWER

Connect the interface cable between the scanner and your computer.

- If using the RS-232 cable, you must join the power supply cord to power up the scanner.
- The scanner will respond with one long beep (high tone) and its LED indicator will become solid red and go off quickly.

1.2 TRANSMIT BUFFER

The scanner is designed to send any collected data to a host computer one by one via the transmit buffer (SRAM). Upon reading a barcode successfully, the scanner responds with one short beep (high tone) and its LED indicator becomes solid green and goes off quickly. However, the host computer may not receive the data immediately if using a low baud rate or waiting for handshake signal (flow control). With the 4 KB transmit buffer, the scanner can ignore the transmission status and keep on reading barcodes until the buffer is full. A warning is given when the transmit buffer is full — the scanner will respond with one long beep (low tone) and its LED indicator will become solid red and go off quickly.

Note: The 4 KB transmit buffer on the scanner can hold as many as 256 scans based on EAN-13 barcodes. Data will be cleared out once the power adaptor to the RS-232 cable is removed or other interface cable is disconnected!

1.3 LED INDICATOR

The dual-color LED on top of the scanner is used to provide user feedback. For example, the LED becomes solid red and goes off quickly (= Standby mode) upon powering on or running out of transmit buffer. You may tell the difference by the beeps – for example, you will hear a long beep of high tone when powering on the scanner, and a long beep of low tone when the transmit buffer becomes full.

LED – Red/Green	Meaning
Red, and goes off quickly	▸ Power on, with one long beep (high tone) ▸ Transmit buffer full, with one long beep (low tone) ▸ RS-232 connection fails, with two beeps (high-low tone)
Green, and goes off quickly	Good Read, with one short beep (high tone) and beeper pitch and duration programmable
Flashing red	Configuration Mode

1.3.1 GOOD READ LED

*Enable Good Read LED

101014

Disable Good Read LED

101013

1.3.2 GOOD READ LED DURATION

By default, the Good Read LED stays on for 40 milliseconds. Specify a value, ranging from 1 to 254 in units of 10 milliseconds.

Good Read LED Time-Out after
0.01~2.54 seconds (*40 ms)

101020

I) Read the label above to specify the time interval before the Good Read LED goes off.

Enter Setup

2) Read the "Decimal Value" label on page 137. For example, read "1" and "5" for the Good Read LED to go off after 150 milliseconds.

3) Read the "Validate" label on the same page to complete this setting.

Update

1.4 BEEPER

The scanner has a buzzer to provide user feedback in various operating conditions.

Beeping	Meaning
One long beep, high tone	Power on, with red LED on and off quickly
One short beep, high tone ▸ Programmable, default to 4 KHz	Good Read, with green LED on and off quickly
Six short beeps ▸ High-low tone repeats three times	▸ Enter Configuration Mode, with red LED flashing ▸ Exit Configuration Mode
Two beeps, low-high tone	Setup label read successfully
Two beeps, high-low tone	RS-232 connection fails (data saved in Transmit Buffer), with red LED on and off quickly
One short beep, high tone	More setup label required
One long beep, low tone	▸ Transmit Buffer Full, with red LED on and off quickly ▸ Configuration Error (Wrong label…)
Two long beeps, high-low tone	Multi-Barcode Mode – Buffer Full

1.4.1 BEEPER VOLUME

Mute

101009

Minimum Volume

101010

Medium Volume

101011

*Maximum Volume

101012

Enter Setup

1.4.2 GOOD READ BEEP

Frequency

8 kHz

101001

* 4 kHz

101002

2 kHz

101003

1 kHz

101004

Duration

*Shortest

101005

Shorter

101006

Longer

101007

Longest

101008

Update

1.5 SEND "NR" TO HOST

This feature only works when Keyboard Wedge or RS-232 is selected for output interface. You may have the scanner send the "NR" string to the host to notify the No Read event.

Enable

100267

*Disable

100266

Enter Setup

1.6 SCAN MODES

Different scan modes are supported – select the scan mode that best suits the requirements of a specific application. Refer to the comparison table below.

Scan Mode	Start to Scan				Stop Scanning			
	Always	Press trigger once	Hold trigger	Press trigger twice	Release trigger	Press trigger once	Barcode being read	Timeout
Continuous mode	✓							
Test mode	✓							
Laser mode			✓		✓		✓	✓
Auto Off mode		✓					✓	✓
Auto Power Off mode		✓						✓
Aiming mode				✓			✓	✓
Multi-Barcode mode			✓		✓			
Alternate mode		✓				✓		

Note: By default, the scan mode is set to Laser mode.

Update

1.6.1 CONTINUOUS MODE

The scanner is always scanning.

- After a successful decoding, the removal of barcode is required. It is not allowed to proceed to decode until the decoding delay time has passed.
- To decode the same barcode repeatedly, move away the barcode and put it back again and again for scanning.

Note: Refer to "Delay between Re-read".

Continuous Mode

100201

Decoding Delay

Set the time interval between each decoding.

*Disable

100227

0.5 sec

100228

1 sec

100229

2 sec

100230

Enter Setup

1.6.2 TEST MODE

The scanner is always scanning.

- Capable of decoding the same barcode repeatedly without removing it, for testing purpose.

Test Mode

100207

1.6.3 LASER MODE

The scanner will start scanning once the trigger is hold down.

- The scanning won't stop until (1) a barcode is decoded, (2) the pre-set timeout expires, or (3) you release the trigger.

Note: Refer to "Scanning Timeout".

*Laser Mode

100206

1.6.4 AUTO OFF MODE

The scanner will start scanning once the trigger is pressed.

- The scanning won't stop until (1) a barcode is decoded, and (2) the pre-set timeout expires.

Note: Refer to "Scanning Timeout".

Auto Off Mode

100200

Update

1.6.5 AUTO POWER OFF MODE

The scanner will start scanning once the trigger is pressed.

- The scanning won't stop until the pre-set timeout expires, and, the pre-set timeout period re-counts after each successful decoding.

Note: Refer to "Delay between Re-read" and "Scanning Timeout".

Auto Power Off Mode

100202

1.6.6 AIMING MODE

The scanner will aim at a barcode once the trigger is pressed, and start scanning when the trigger is pressed again within one second.

- The scanning won't stop until (1) a barcode is decoded, and (2) the pre-set timeout expires.

Aiming Mode

100208

Aiming Timeout

You can limit the aiming time interval (1~15). By default, the scanner time-out is set to 1 second.

Aiming Time-Out after 1~15 seconds (*1)

100226

1. Read the label above to specify the time interval before aiming ends. (It is set to 1 by default.)

2. Read the "Decimal Value" label on page 137. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 10 seconds.

3. Read the "Validate" label on the same page to complete this setting.

Enter Setup

1.6.7 MULTI-BARCODE MODE

The scanner will be scanning as long as the trigger is held down, capable of decoding not only one single barcode but a concatenation of unique barcodes.

- The scanning won't stop until you release the trigger.

Multi-Barcode Mode

100209

Note: (1) A barcode is considered unique when its Code Type or data is different from others.
(2) Multi-Barcode Mode has nothing to do with the Multi-Barcode Editor.

1.6.8 ALTERNATE MODE

The scanner will start scanning once the trigger is pressed

- The scanning won't stop until you press the trigger again.

Alternate Mode

100203

Update

1.7 SCANNING TIMEOUT

Specify the scanning time interval (1~254 sec.; 0= Disable) when the scan mode is set to any of the following –

- Laser mode
- Auto Off mode
- Auto Power Off mode
- Aiming mode

Scanner Time-Out after 0~254 seconds (*10)

100235

1) Read the label above to specify the time interval before the scan engine times out.
2) Read the "Decimal Value" label on page 137. For example, read "1" and "5" for the scanner to automatically shut down after being idle for 15 seconds.
3) Read the "Validate" label on the same page to complete this setting.

Enter Setup

1.8 DELAY BETWEEN RE-READ

This is also referred to as the "Blocking Time", which is used to prevent the scanner from accidentally reading the same barcode twice when the scan mode is set to any of the following –

- Continuous mode
- Auto Power Off mode
- Alternate mode

100 ms

100216

200 ms

100217

* 400 ms

100218

800 ms

100219

1 sec

100220

2 sec

100221

3 sec

100222

5 sec

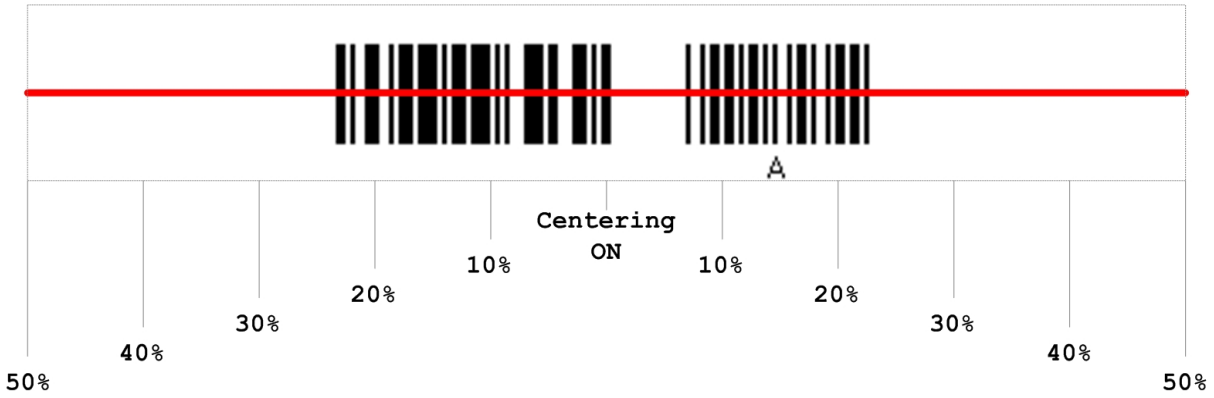
100223

Update

1.9 EFFECTIVE DECODING AREA

By default, the effective decoding area is 100% covered by the scanned area. However, you may narrow down the decoding area to prevent reading the wrong barcode when a number of barcodes are printed closely. The scanner will only read barcodes that appear in the effective decoding area.

Read the label "Centering On" and specify the percentage to narrow down the decoding area. For example, read "Left 10%" and then "Right 30%" for the scanner to decode barcode "A" only.



1.9.1 POSITIONING WINDOW

Centering On

*Centering Off

1.9.2 ADJUSTING WINDOW

Percentage for Left Half

*Left 50%

Enter Setup

Left 40%

100281

Left 30%

100282

Left 20%

100283

Left 10%

100284

Percentage for Right Half

Right 10%

100288

Right 20%

100289

Right 30%

100290

Right 40%

100291

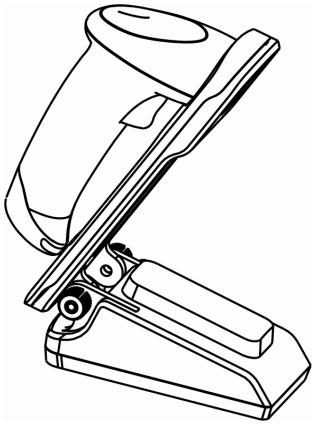
*Right 50%

100292

Update

1.10 AUTO-SENSE MODE (1500 ONLY)

This mode is only available when you want to seat the scanner in the Auto-Sense Stand. When you enable this mode, it will force the scanner to apply Laser mode as the scan mode. However, it works slightly different from the original Laser mode. Now the scanner will be scanning as long as it is seated in the Auto-Sense Stand, as shown below. Whenever a barcode is brought within range, the scanner will be able to decode it.



Warning: When you disable this mode later, the scan mode remains unchanged. If Laser mode is not desired, proceed to select a scan mode best suits your application.

Enable

100271

*Disable

100270

When the ambient light is too dim to activate the sensor, you may have the scanner read the "High Sensitivity" label to improve performance.

High Sensitivity

101469

*Normal

101468

Enter Setup

1.11 NEGATIVE BARCODES

Normally, barcodes are printed with the color of the bars darker than that of the spaces. But for negative barcodes, they are printed in the opposite sense just like negative films. The spaces of negative barcodes are printed with a color darker than that of the bars. You can configure the scanner to be able to read negative barcodes.

Enable

100225

*Disable

100224

1.12 SYMBOLOGIES SUPPORTED

Most of the popular barcode symbologies are supported, as listed below. Each can be individually enabled or disabled. The scanner will automatically discriminate and recognize all the symbologies that are enabled. Refer to Chapter 3 Changing Symbology Settings for details of each symbology.

Symbologies Supported: Enable/Disable		CCD Scan Engine
Codabar		Enabled
Code 93		Enabled
MSI		Disabled
Plessey		Disabled
Telepen		Disabled
Code 128	Code 128	Enabled
	EAN-128	Disabled
	ISBT-128	Disabled
Code 2 of 5	Industrial 25	Enabled
	Interleaved 25	Enabled
	Matrix 25	Disabled
Code 3 of 9	Code 39	Enabled
	Italian Pharmacode	Disabled
	French Pharmacode	Disabled

Update

EAN/UPC	EAN-8	Enabled
	EAN-8 Addon 2	Disabled
	EAN-8 Addon 5	Disabled
	EAN-13	Enabled
	EAN-13 & UPC-A Addon 2	Disabled
	EAN-13 & UPC-A Addon 5	Disabled
	ISBN	Disabled
	UPC-E0	Enabled
	UPC-E1	Disabled
	UPC-E Addon 2	Disabled
	UPC-E Addon 5	Disabled
	UPC-A	Enabled
RSS	RSS-14	Disabled
	RSS Limited	Disabled
	RSS Expanded	Disabled

1.12.1 READ REDUNDANCY FOR ALL SYMBLOGIES

Select the level of reading security. For example,

- If "No Redundancy" is selected, one successful decoding will make the reading valid and induce the "READER Event".
- If "Three Times" is selected, it will take a total of four consecutive successful decodings of the same barcode to make the reading valid. The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets.

It is obvious that the more redundancy you select, the higher the reading security is, and thus, the slower the reading speed becomes. You will have to compromise between reading security and decoding speed.

*No Redundancy

One Time

Enter Setup

Two Times

Three Times

1.12.2 ADDON SECURITY FOR UPC/EAN BARCODES

You may like to enforce read redundancy (0~30 times) on UPC/EAN barcodes with addons only.

Note: UPC/EAN Addon 2 and Addon 5 must be enabled individually for this setting to take effect.

Addon Security Level (*0 ~ 30)

1) Read the label above to specify the read redundancy when missing add-ons while scanning UPC/EAN barcodes. (It is set to 0 by default.)
2) Read the "Decimal Value" label on page 137. For example, read "1" and "2" for the scanner to re-read the barcode for 12 times.
3) Read the "Validate" label on the same page to complete this setting.

Update

Enter Setup

Chapter 2

SELECTING OUTPUT INTERFACE

In order to establish a proper connection between your computer and the scanner, we suggest that you follow these instructions –

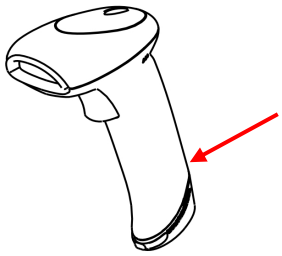
1) Turn off your computer or laptop.
2) Connect the interface cable between the scanner and your computer.

   If using the RS-232 cable, join the power supply cord.

   - If you are connecting the scanner to the USB port of the host computer via USB HID cable (part # 307), refer to 2.1 Keyboard Wedge for related settings.
   - If you are connecting the scanner to the USB port of the host computer via USB Virtual COM cable (part # 308), refer to 2.2 RS-232 related settings.
   - If you are connecting the scanner to the IBM POS 4683/4694 via the converter cable (part # 346), refer to 2.1 Keyboard Wedge for related settings.
3) Turn on your computer or laptop.
4) Have the scanner read the "Enter Setup" label to enter the configuration mode.
5) Have the scanner read the associated label to activate the desired interface.

   See the following sections for output interfaces supported.
6) Have the scanner read the labels for related settings.
7) Have the scanner read the "Update" label to exit the configuration mode.

Note: By default, the output interface is set to "Keyboard Wedge".



Insert a pin and press it hard to release the interface cable.

IN THIS CHAPTER

2.1 Keyboard Wedge 34
2.2 RS-232 42
2.3 Wand Emulation 47

Update

2.1 KEYBOARD WEDGE

The Y cable allows you to connect the scanner to the keyboard input port of PC and you may join the keyboard as well. The scanned data will be transmitted to the host keyboard port as if it is manually entered via the keyboard.

Keyboard Wedge Settings	Defaults
Keyboard Type	PCAT (US)
Alphabets Layout	Normal
Digits Layout	Normal
Capital Lock Type	Normal
Capital Lock State	Off
Alphabets Transmission	Case-sensitive
Digits Transmission	Alphanumeric keypad
Alternate Composing	No
Inter-Character Delay	0 (ms)
Inter-Function Delay	0 (ms)
Send "NR" to Host	Disable
Laptop Support	Disable

2.1.1 ACTIVATE KEYBOARD WEDGE & SELECT KEYBOARD TYPE

When Keyboard Wedge interface is activated, you will have to select a keyboard type to complete this setting.

Activate & Select Keyboard Type …

100000

1) Read this label above to activate Keyboard Wedge and select a keyboard type.
2) Read the "Decimal Value" label on page 137. Refer to the table below for the number of desired keyboard type.
3) Read the "Validate" label on the same page to complete this setting.

Enter Setup

Keyboard Type

By default, the keyboard type is set to PCAT (US). The following keyboard types are supported –

No.	Keyboard Type	No.	Keyboard Type
1	PCAT (US)	16	PS55 001-2
2	PCAT (French)	17	PS55 001-82
3	PCAT (German)	18	PS55 001-3
4	PCAT (Italian)	19	PS55 001-8A
5	PCAT (Swedish)	20	PS55 002-1, 003-1
6	PCAT (Norwegian)	21	PS55 002-81, 003-81
7	PCAT (UK)	22	PS55 002-2, 003-2
8	PCAT (Belgium)	23	PS55 002-82, 003-82
9	PCAT (Spanish)	24	PS55 002-3, 003-3
10	PCAT (Portuguese)	25	PS55 002-8A, 003-8A
11	PS55 A01-1	26	IBM 3477 Type 4 (Japanese)
12	PS55 A01-2 (Japanese)	27	PS2-30
13	PS55 A01-3	28	IBM 34XX/319X, Memorex Telex 122 Keys
14	PS55 001-1	29	User-defined table
15	PS55 001-81		

2.1.2 KEYBOARD SETTINGS

Alphabets Layout

By default, the alphabets layout is set to normal mode, also known as the standard English layout. Select French or German keyboard layout if necessary. The scanner will make adjustments when sending the "A", "Q", "W", "Z", "Y", and "M" characters according to this setting.

*Normal

100060

AZERTY

100061

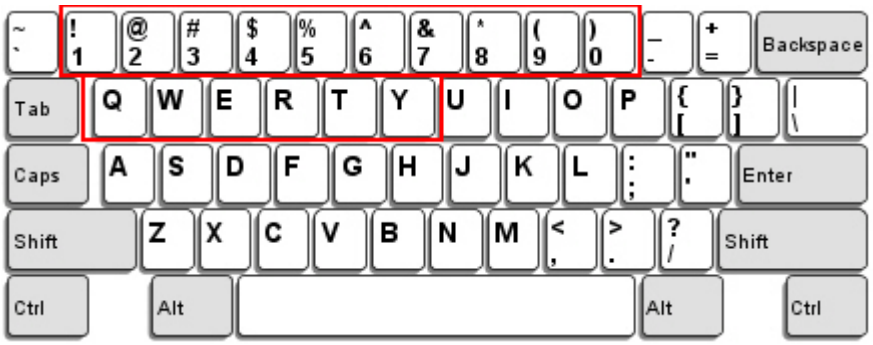
QWERTZ

100062

Update

US Keyboard Style – Normal

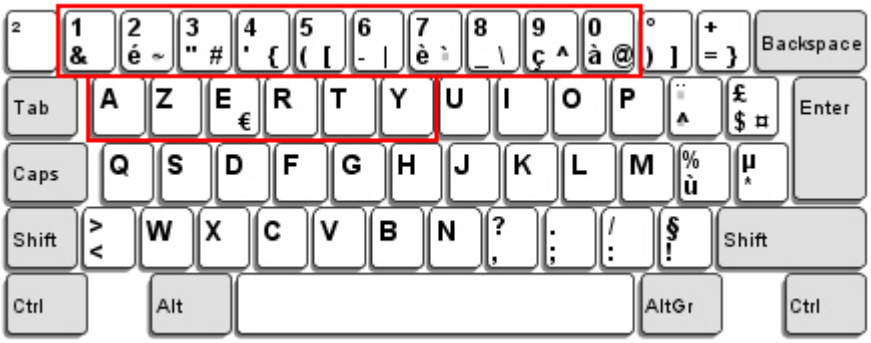
QWERTY layout, which is normally used in western countries.



- Select "Lower Row" for the "Digits Layout" setting for the upper row is for special characters.

French Keyboard Style – AZERTY

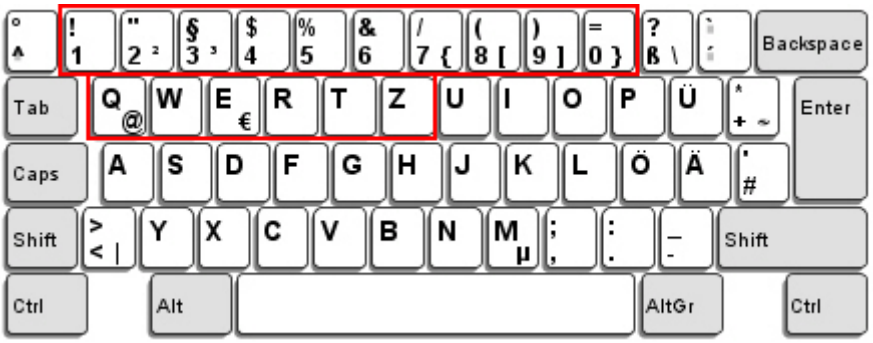
French layout; see below for French Keyboard Style.



- Select "Upper Row" for the "Digits Layout" setting for the lower row is for special characters.

German Keyboard Layout – QWERTZ

German layout; see below for German Keyboard Style.



- Select "Lower Row" for the "Digits Layout" setting for the upper row is for special characters.

Note: This setting only works when the keyboard type selected is US keyboard, such as PCAT (US). The Alphabets Layout and Digits Layout setting must match your keyboard.

Digits Layout

Select a proper layout that matches the alphabets layout. The scanner will make adjustments according to this setting.

Options	Description
Normal	Depends on the [Shift] key or [Shift Lock] setting
Lower Row	For QWERTY or QWERTZ keyboard
Upper Row	For AZERTY keyboard

*Normal

100046

Lower Row

100048

Upper Row

100049

Note: This setting is meant to be used with the Alphabets Layout; and perhaps with the Character Substitution setting when support to certain keyboard types (languages) is unavailable but required.

Capital Lock Type & Setting

In order to send the alphabets with correct case, the scanner needs to know the status of Caps Lock on the keyboard. Incorrect settings may result in reversed case of the alphabets being transmitted.

Cap Lock Type	Description
Normal	Normal type
Capital Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters. However, this does not affect the number or punctuation keys.
Shift Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters. In addition, this affects the number or punctuation keys.

Update

*Normal

100042

Capital Lock

100044

Shift Lock

100045

Capital Lock State	Description
Capital Lock OFF	Assuming that the status of Caps Lock on the keyboard is OFF, transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission).
Capital Lock ON	Assuming that the status of Caps Lock on the keyboard is ON, transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission). ▸ Refer to the Capital Lock Type above.
Auto Detection	The scanner will automatically detect the status of Caps Lock on the keyboard before data is transmitted; transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission). ▸ This setting is not supported on PDAs.

*Capital Lock OFF

100052

Capital Lock ON

100053

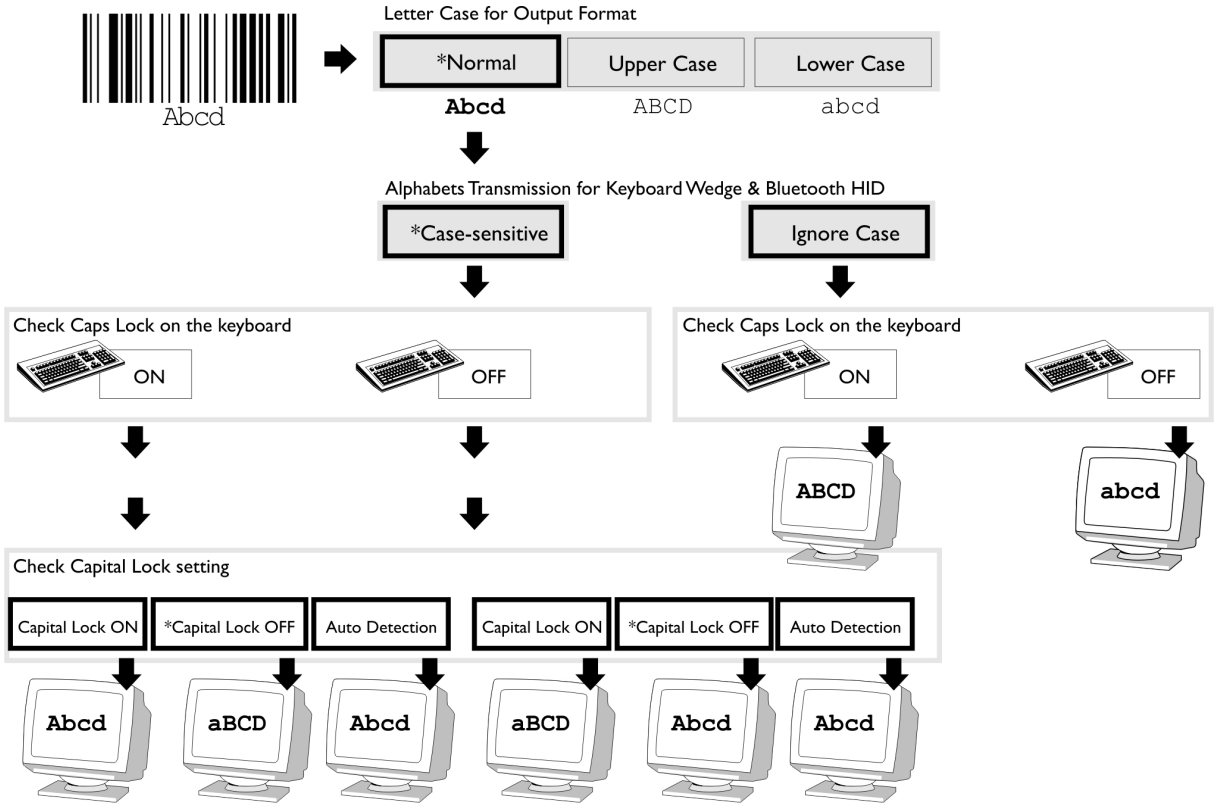
Auto Detection

100054

Enter Setup

Alphabets Transmission

By default, the alphabets transmission is case-sensitive, meaning that the alphabets will be transmitted according to their original case, the status of Caps Lock on the keyboard, as well as the Capital Lock setting. Select [Ignore Case] to have alphabets transmitted according to the status of Caps Lock on the keyboard only.



*Case-sensitive

100050

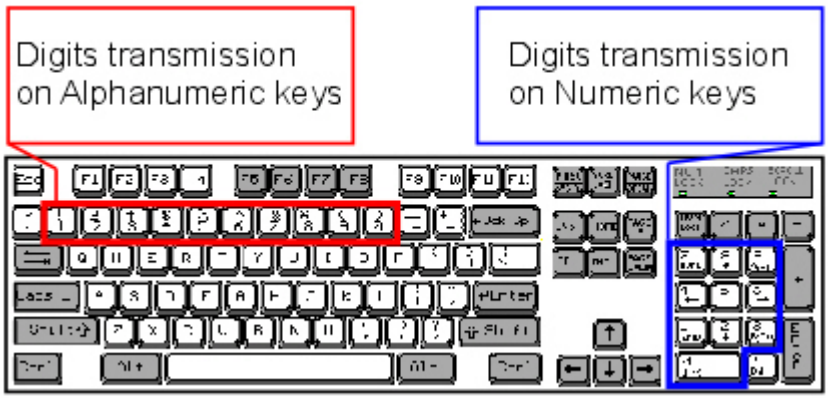
Ignore Case

100051

Digits Transmission

By default, the alphanumeric keypad is used for transmitting digits. Select "Numeric Keypad" if you wish to use the keys on the numeric keypad.

Update



*Alphanumeric Key

100040

Numeric Key

100041

Note: If you select "Numeric Keypad", the Num Lock status of the physical keyboard should be "ON". This setting is not supported on PDAs.

ALT Composing

By default, Alternate key composing is disabled. Select [Yes] to allow emulating Alternate key code of a specific keyboard character. For example, [Alt] + [065] will be sent to host for the character "A" regardless the keyboard type you are using.

Yes

100057

*No

100056

Laptop Support

By default, laptop support is disabled. It is suggested to enable this feature if you connect the wedge cable to a laptop without an external keyboard being inter-connected.

Enter Setup

Enable

100059

*Disable

100058

2.1.3 INTER-CHARACTER DELAY

By default, the inter-character delay is set to zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every character being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Character Delay … (*0 ~ 254)

100011

1) Read the label above to specify the inter-character delay.
2) Read the "Decimal Value" label on page 137 for the desired inter-character delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

2.1.4 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Function Delay … (*0 ~ 254)

100012

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 137 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

Update

2.2 RS-232

Use the RS-232 cable to cconnect the scanner to the serial port of PC and join the power adaptor to the RS-232 connector. The associated RS-232 parameters must match those configured on the computer. The scanned data will be transmitted to the serial port.

RS-232 Settings	Defaults
Baud Rate, Data Bit, Parity, Stop Bit	9600 bps, 8 bits, No parity, 1 stop bit
Flow Control	None
Inter-Character Delay	0 (ms)
Inter-Function Delay	0 (ms)
Send "NR" to Host	Disable
ACK/NAK Timeout	0
ACK/NAK Beep	Disable

2.2.1 ACTIVATE RS-232 INTERFACE

Activate RS-232 Interface

100001

2.2.2 BAUD RATE

115200 bps

100080

57600 bps

100081

38400 bps

100082

19200 bps

100083

Enter Setup

* 9600 bps

100084

2400 bps

100085

1200 bps

100086

600 bps

100087

2.2.3 DATA BITS

* 8 bits

100093

7 bits

100092

2.2.4 PARITY

*No Parity

100088

Even

100090

Update

Odd

100091

2.2.5 STOP BIT

2 stop bits

100099

* 1 stop bit

100098

2.2.6 FLOW CONTROL

By default, there is no flow control in use. Select the flow control (handshake) method.

Options	Description
No	No flow control
Scanner Ready	The scanner will activate the RTS signal upon powering on. After each good read, the scanner will then wait for the CTS signal to become active. Data will not be sent until the CTS signal becomes active.
Data Ready	The RTS signal will be activated after each good read. The scanner will then wait for the CTS signal to become active. Data will not be sent until the CTS signal becomes active.
Inverted Data Ready	It works the same as the Data Ready flow control, except that the RTS signal level is inverted.

*None

100094

Scanner Ready

100095

Enter Setup

Data Ready

100096

Invert Data Ready

100097

2.2.7 INTER-CHARACTER DELAY

By default, the inter-character delay is zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time. Such delay time is inserted between every character being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Character Delay … (*0 ~ 254)

100011

1) Read the label above to specify the inter-character delay.
2) Read the "Decimal Value" label on page 137 for the desired inter-character delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

2.2.8 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Function Delay … (*0 ~ 254)

100012

1) Read this label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 137 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

Update

2.2.9 ACK/NAK TIMEOUT

By default, the scanner sends data to the host without waiting for an ACK/NAK response before sending more data. Specify a value, ranging from 1 to 99 in units of 0.1 second. If no response within the specified period of time, the scanner will attempt to send the same data three more times. If all the attempts fail without any notification, data loss will occur.

ACK/NAK Time-Out after … (*0 ~ 99)

100013

1) Read the label above to specify the time interval for the scanner to send data and wait for a response from the host.
2) Read the "Decimal Value" label on page 137. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.
3) Read the "Validate" label on the same page to complete this setting.

ACK/NAK Error Beep

Enable Error Beep

100015

*Disable Error Beep

100014

Note: We suggest you to enable the error beep so that you will be notified of such data loss and have the scanner re-read data.

Enter Setup

2.3 WAND EMULATION

The wand emulation cable allows you to connect the scanner to a data terminal that is expecting input from a wand scanner.

Wand Emulation Settings	Defaults
Normal State	Low
Bar State	High
Module Time	1 (ms)
Margin Time	20 (ms)

2.3.1 ACTIVATE WAND EMULATION

Activate Wand Emulation

100002

2.3.2 NORMAL STATE

By default, the signal level is set "Low" for the normal state when not transmitting any barcode image (= white spaces in a barcode).

High

100137

*Low

100136

2.3.3 BAR STATE

By default, the signal level is set "High" for a bar when transmitting a barcode image (= dark bars in a barcode).

*High

100139

Update

Low

100138

2.3.4 MODULE TIME

By default, it is set 1 millisecond as the time span for bar and space modules. Select other value for the module time, in units of micro-second or millisecond.

250 µs

100128

500 µs

100129

* 1 ms

100130

1.5 ms

100131

2 ms

100132

3 ms

100133

4 ms

100134

5 ms

100135

Enter Setup

2.3.5 MARGIN TIME

By default, it is set 20 milliseconds as the time span for the change in state for bar and space modules. Select other value for the margin time.

5 ms

100120

10 ms

100121

* 20 ms

100122

30 ms

100123

40 ms

100124

60 ms

100125

80 ms

100126

100 ms

100127

Note: Margin Time is applied only when the signal level for Normal State and Bar State is the same.

Update

Enter Setup

Chapter 3

CHANGING SYMBOLOGY SETTINGS

In this chapter, a brief on the symbology settings is provided for your reference.

IN THIS CHAPTER

3.1 Codabar 52
3.2 Code 25 - Industrial 25 54
3.3 Code 25 - Interleaved 25 57
3.4 Code 25 - Matrix 25 60
3.5 Code 39 63
3.6 Code 93 65
3.7 Code 128 65
3.8 EAN-8 66
3.9 EAN-13 68
3.10 EAN-128 70
3.11 ISBT128 71
3.12 MSI 72
3.13 French Pharmacode 75
3.14 Italian Pharmacode 76
3.15 Plessey 77
3.16 RSS Family 78
3.17 Telepen 82
3.18 UPC-A 83
3.19 UPC-E 85

3.1 CODABAR

*Enable Codabar

100313

Disable Codabar

100312

3.1.1 START/STOP CHARACTERS SELECTION

Select one of the four different start/stop character pairs –

* abcd/abcd

100436

abcd/tn*e

100437

ABCD/ABCD

100438

ABCD/TN*E

100439

Enter Setup

3.1.2 START/STOP TRANSMISSION

Decide whether or not to include the start/stop characters in the data being transmitted.

Transmit Codabar Start/Stop Characters

100441

*Do Not Transmit

100440

3.1.3 CLSI CONVERSION

When enabled, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode.

Apply CLSI Editing

100443

*Do Not Apply

100442

Note: The 14-character barcode length does not include start/stop characters.

Update

3.2 CODE 25 – INDUSTRIAL 25

*Enable Industrial 25

Disable Industrial 25

3.2.1 START/STOP PATTERN SELECTION

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

*Industrial 25
Start/Stop Pattern

Interleaved 25
Start/Stop Pattern

Matrix 25
Start/Stop Pattern

Enter Setup

3.2.2 CHECKSUM VERIFICATION

Decide whether to verify the checksum. If the checksum is incorrect, the barcode will not be accepted.

Verify Industrial 25 Checksum

100425

*Do Not Verify

100424

3.2.3 CHECKSUM TRANSMISSION

Decide whether to include the checksum in the data being transmitted.

*Transmit Industrial 25 Checksum

100427

Do Not Transmit

100426

Update

3.2.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100601

Enable Fixed Length(s) …

100600

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*127) Or Fixed Length 1

100602

Min. Length (*4) Or Fixed Length 2

100603

3) Read the "Decimal Value" label on page 137 for the desired length.

4) Read the "Validate" label on the same page to complete this setting.

Enter Setup

3.3 CODE 25 – INTERLEAVED 25

*Enable Interleaved 25

100309

Disable Interleaved 25

100308

3.3.1 START/STOP PATTERN SELECTION

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

Industrial 25
Start/Stop Pattern

100416

*Interleaved 25
Start/Stop Pattern

100417

Matrix 25
Start/Stop Pattern

100418

Update

3.3.2 CHECKSUM VERIFICATION

Decide whether to verify the checksum. If the checksum is incorrect, the barcode will not be accepted.

Verify Interleaved 25 Checksum

100429

*Do Not Verify

100428

3.3.3 CHECKSUM TRANSMISSION

Decide whether to include the checksum in the data being transmitted.

*Transmit Interleaved 25 Checksum

100431

Do Not Transmit

100430

Enter Setup

3.3.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100605

Enable Fixed Length(s) …

100604

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*126) Or Fixed Length 1

100606

Min. Length (*4) Or Fixed Length 2

100607

3) Read the "Decimal Value" label on page 137 for the desired length.

4) Read the "Validate" label on the same page to complete this setting.

Update

3.4 CODE 25 – MATRIX 25

Enable Matrix 25

100311

*Disable Matrix 25

100310

3.4.1 START/STOP PATTERN SELECTION

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

Industrial 25
Start/Stop Pattern

100420

Interleaved 25
Start/Stop Pattern

100421

*Matrix 25
Start/Stop Pattern

100422

Enter Setup

3.4.2 CHECKSUM VERIFICATION

Decide whether to verify the checksum. If the checksum is incorrect, the barcode will not be accepted.

Verify Matrix 25 Checksum

100433

*Do Not Verify

100432

3.4.3 CHECKSUM TRANSMISSION

Decide whether to include the checksum in the data being transmitted.

*Transmit Matrix 25 Checksum

100435

Do Not Transmit

100434

Update

3.4.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100609

Enable Fixed Length(s) …

100608

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*127) Or Fixed Length 1

100610

Min. Length (*4) Or Fixed Length 2

100611

3) Read the "Decimal Value" label on page 137 for the desired length.

4) Read the "Validate" label on the same page to complete this setting.

Enter Setup

3.5 CODE 39

*Enable Code 39

100301

Disable Code 39

100300

3.5.1 START/STOP TRANSMISSION

Decide whether or not to include the start/stop characters in the data being transmitted.

Transmit Code 39 Start/Stop Characters

100403

*Do Not Transmit

100402

3.5.2 CHECKSUM VERIFICATION

Decide whether or not to perform checksum verification when decoding barcodes.

- If enabled and the checksum found incorrect, the barcode will not be accepted.

Verify Code 39 Checksum

100405

*Do Not Verify

100404

Update

3.5.3 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit Code 39 Checksum

Do Not Transmit

3.5.4 STANDARD/FULL ASCII CODE 39

Decide whether or not to support Code 39 Full ASCII that includes all the alphanumeric and special characters.

Code 39 Full ASCII

*Standard Code 39

Enter Setup

3.6 CODE 93

You can only configure the scanner to read this symbology or not.

*Enable Code 93

Disable Code 93

3.7 CODE 128

You can only configure the scanner to read this symbology or not.

*Enable Code 128

Disable Code 128

Update

3.8 EAN-8

*Enable EAN-8
(No Addon)

100327

Disable EAN-8
(No Addon)

100326

Enable EAN-8
Addon 2

100329

*Disable EAN-8
Addon 2

100328

Enable EAN-8
Addon 5

100331

*Disable EAN-8
Addon 5

100330

Enter Setup

3.8.1 CONVERT TO EAN-13

Decide whether or not to expand the read EAN-8 barcode into EAN-13.

- If enabled, the next processing will follow the parameters configured for EAN-13.

Convert EAN-8 to EAN-13

100461

*Do Not Convert

100460

3.8.2 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit EAN-8 Checksum

100471

Do Not Transmit

100470

Update

3.9 EAN-13

*Enable EAN-13
(No Addon)

100333

Disable EAN-13
(No Addon)

100332

Enable EAN-13
Addon 2

100335

*Disable EAN-13
Addon 2

100334

Enable EAN-13
Addon 5

100337

*Disable EAN-13
Addon 5

100336

Enter Setup

3.9.1 ISBN CONVERSION

Decide whether or not to convert the EAN-13 barcode, starting with 978 and 979, to ISBN.

Convert EAN-13 to ISBN

100463

*Do Not Convert

100462

3.9.2 ISSN CONVERSION

Decide whether or not to convert the EAN-13 barcode, starting with 977 to ISSN.

Convert EAN-13 to ISSN

100465

*Do Not Convert

100464

3.9.3 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit EAN-13 Checksum

100473

Do Not Transmit

100472

Update

3.10 EAN-128

Enable EAN-128

*Disable EAN-128

3.10.1 CODE ID TRANSMISSION

Decide whether or not to include the Code ID ("]C1") in the data being transmitted.

Transmit EAN-128 Code ID

*Do Not Transmit

3.10.2 FIELD SEPARATOR (GS CHARACTER)

Decide whether or not to apply a field separator (to convert the FNC1 control character to human readable character).

Enable Field Separator …

1) Read the label above to enable field separator.
2) Read the "Hexadecimal Value" label on page 138 for the desired character string.
3) Read the "Validate" label to complete this setting.

Enter Setup

Note: EAN-128 barcodes start with the FNC1 control character to distinguish themselves from other uses of Code 128. FNC1 is also used to separate data fields in the EAN-128 barcodes.

3.11 ISBT 128

You can only configure the scanner to read this symbology or not.

Enable ISBT 128

*Disable ISBT 128

Update

3.12 MSI

Enable MSI

100345

*Disable MSI

100344

3.12.1 CHECKSUM VERIFICATION

Select one of the three checksum calculations to perform checksum verification when decoding barcodes.

- If enabled and the checksum found incorrect, the barcode will not be accepted.

*Single Modulo 10

100448

Double Modulo 10

100449

Modulo 10 & 11

100450

Enter Setup

3.12.2 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Last Digit Not Transmitted

100452

Both Digits Transmitted

100453

Both Digits Not Transmitted

100454

Update

3.12.3 CODE LENGTH QUALIFICATION

Because of the weak structure of the symbology, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100613

Enable Fixed Length(s) …

100612

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*127) Or Fixed Length 1

100614

Min. Length (*4) Or Fixed Length 2

100615

3) Read the "Decimal Value" label on page 137 for the desired length.

4) Read the "Validate" label on the same page to complete this setting.

Enter Setup

3.13 FRENCH PHARMACODE

Enable French Pharmacode

100305

*Disable French Pharmacode

100304

3.13.1 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit French Pharmacode Checksum

100411

Do Not Transmit

100410

Update

3.14 ITALIAN PHARMACODE

Enable Italian Pharmacode

100303

*Disable Italian Pharmacode

100302

3.14.1 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit Italian Pharmacode Checksum

100409

Do Not Transmit

100408

Enter Setup

3.15 PLESSEY

Enable Plessey

*Disable Plessey

3.15.1 CONVERT TO UK PLESSEY

Decide whether or not to change each occurrence of the character 'A' to character 'X' in the decoded data.

Convert to UK Plessey

*Do Not Convert

3.15.2 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum characters (two digits) in the data being transmitted.

*Transmit Plessey Checksum

Do Not Transmit

Update

3.16 RSS FAMILY

3.16.1 CODE ID SELECTION

Select a desired Code ID to use – RSS Code ID "]e0" or EAN-128 Code ID "]C1".

"]C1" for RSS Code ID

100517

"]e0" for RSS Code ID (Default)

100516

3.16.2 RSS-14

Enable RSS-14 & RSS Expanded

100349

*Disable RSS-14 & RSS Expanded

100348

Code ID Transmission

Decide whether or not to include the Code ID in the data being transmitted.

*Transmit RSS-14 Code ID

100523

Do Not Transmit

100522

Enter Setup

Application ID Transmission

Decide whether or not to include the Application ID ("01") in the data being transmitted.

*Transmit RSS-14 Application ID

100529

Do Not Transmit

100528

Checksum Transmission

Decide whether or not to include the check digit in the data being transmitted.

*Transmit RSS-14 Checksum

100481

Do Not Transmit

100480

3.16.3 RSS EXPANDED

Enable RSS-14 & RSS Expanded

100349

*Disable RSS-14 & RSS Expanded

100348

Update

Code ID Transmission

Decide whether or not to include the Code ID in the data being transmitted.

*Transmit RSS Expanded Code ID

100527

Do Not Transmit

100526

3.16.4 RSS LIMITED

Enable RSS Limited

100351

*Disable RSS Limited

100350

Code ID Transmission

Decide whether or not to include the Code ID in the data being transmitted.

*Transmit RSS Limited Code ID

100525

Do Not Transmit

100524

Enter Setup

Application ID Transmission

Decide whether or not to include the Application ID ("01") in the data being transmitted.

*Transmit RSS Limited Application ID

Do Not Transmit

Checksum Transmission

Decide whether or not to include the check digit in the data being transmitted.

*Transmit RSS Limited Checksum

Do Not Transmit

Update

3.17 TELEPEN

Enable Telepen

*Disable Telepen

3.17.1 TELEPEN OUTPUT – FULL ASCII/NUMERIC

Decide whether or not to support Telepen in full ASCII code. By default, it supports ASCII mode.

- AIM Telepen (Full ASCII) includes all the alphanumeric and special characters.

Original Telepen
(Numeric)

* AIM Telepen

Enter Setup

3.18 UPC-A

*Enable UPC-A (No Addon)

100339

Disable UPC-A (No Addon)

100338

Enable UPC-A Addon 2

100341

*Disable UPC-A Addon 2

100340

Enable UPC-A Addon 5

100343

*Disable UPC-A Addon 5

100342

Update

3.18.1 CONVERT TO EAN-13

Decide whether or not to expand the read UPC-A barcode into EAN-13.

- If enabled, the next processing will follow the parameters configured for EAN-13.

Convert UPC-A to EAN-13

100459

*Do Not Convert

100458

3.18.2 SYSTEM NUMBER TRANSMISSION

Decide whether or not to include the system number in the data being transmitted.

*Transmit UPC-A System Number

100477

Do Not Transmit

100476

3.18.3 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit UPC-A Checksum

100469

Do Not Transmit

100468

Enter Setup

3.19 UPC-E

*Enable UPC-E
(No Addon)

100321

Disable UPC-E
(No Addon)

100320

Enable UPC-E
Addon 2

100323

*Disable UPC-E
Addon 2

100322

Enable UPC-E
Addon 5

100325

*Disable UPC-E
Addon 5

100324

Update

3.19.1 SYSTEM NUMBER SELECTION

Decide whether to decode the ordinary UPC-E barcodes only or both UPC-E0 and UPC-E1 barcodes.

- System number 0 enabled for decoding UPC-E0 barcodes.
- System number 1 enabled for decoding UPC-E1 barcodes.

System Number 0 & 1

100479

* System Number 0 Only

100478

Warning: Because of the way system number 1 is encoded, if both system numbers are enabled, the user might suffer from short scanning UPC-A or EAN-13 barcodes into UPC-E1 barcodes.

3.19.2 CONVERT TO UPC-A

Decide whether or not to expand the read UPC-E barcode into UPC-A.

- If enable, the next processing will follow the parameters configured for UPC-A.

Convert UPC-E to UPC-A

100457

*Do Not Convert

100456

Enter Setup

3.19.3 SYSTEM NUMBER TRANSMISSION

Decide whether or not to include the system number in the data being transmitted.

Transmit UPC-E System Number

100475

*Do Not Transmit

100474

3.19.4 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit UPC-E Checksum

100467

Do Not Transmit

100466

Update

Enter Setup

Chapter 4

DEFINING OUTPUT FORMAT

You may configure in which format the collected data will be output to the host computer. Barcode read by the scanner will be processed in the following sequence –

1) Perform character substitution on the data scanned.
2) Add Code ID and Length Code to the front of the data: `[Code ID][Length Code][Data]`
3) Process the whole data in step 2 with user formats. Data is now divided into fields by user specified rules. Refer to Chapter 5 Applying Formats for Data Editing.
4) Add Prefix Code and Suffix Code before transmission: `[Prefix Code][Processed Data][Suffix Code]`

IN THIS CHAPTER

4.1 Letter Case 89
4.2 Character Substitution 90
4.3 Prefix/Suffix Code 96
4.4 Code ID 97
4.5 Length Code 101
4.6 Multi-Barcode Editor 104

4.1 LETTER CASE

By default, the alphabets transmission is case-sensitive, meaning that the alphabets will be transmitted according to their original case. Ignoring the original letter case, select [Upper Case] to output data in upper case only; otherwise, select [Lower Case] to output data in lower case only.

*Normal

101202

Upper Case

101203

Lower Case

101204

Update

4.2 CHARACTER SUBSTITUTION

Character substitution is performed on every occurrence of the first character specified. If only one character is specified, every occurrence of that character in the barcode will be taken away.

- The first character will be replaced by the second character(s).
- Up to three sets of character substitution can be configured.

Note: The character substitution is performed only on the barcode itself and before the processing of editing formats. It is not applicable to the Prefix/Suffix Code, Code ID, Length Code, or any Additional Field.

4.2.1 SELECT A SET FOR CHARACTER SUBSTITUION

Configure Set 1

101232

Configure Set 2

101233

Configure Set 3

101234

1) Read the label above to enable character substitution by set.

   For example, have the scanner read the "Set 1" label to configure the first set of character substitution. The scanner will respond with one short beep, high tone, to indicate more setup labels are required.

2) Read the "Hexadecimal Value" label on page 138 for the desired character string.

   For example, have the scanner read (1) "3", "0", "2" and "D" to replace the character [0] with a dash [-] for Set 1, and (2) "3", "0", "2", "D", "3" and "0"to replace the character [0] with a dash [- 0] for Set 2.

3) Read the "Validate" label to complete this setting. (The defined set or sets will be applied to all symbologies by default.)

Enter Setup

4.2.2 SYMBOLOGIES FOR CHARACTER SUBSTITUTION (ALL 3 SETS)

By default character substitution will be performed on all symbologies. If the character substitution is not desired with one or more symbologies, read the "Do Not Apply" label for each undesired symbologies and all the three sets will be ignored for them.

Character Substitution for Codabar

*Apply

101253

Do Not Apply

101252

Character Substitution for Code 39

*Apply

101241

Do Not Apply

101240

Character Substitution for Code 93

*Apply

101255

Do Not Apply

101254

Character Substitution for Code 128

*Apply

101257

Do Not Apply

101256

Character Substitution for EAN-128

*Apply

101259

Do Not Apply

101258

Update

Character Substitution for EAN-8 (No Addon)

*Apply

101267

Do Not Apply

101266

Character Substitution for EAN-8 Addon 2

*Apply

101269

Do Not Apply

101268

Character Substitution for EAN-8 Addon 5

*Apply

101271

Do Not Apply

101270

Character Substitution for EAN-13 (No Addon)

*Apply

101273

Do Not Apply

101272

Character Substitution for EAN-13 Addon 2

*Apply

101275

Do Not Apply

101274

Character Substitution for EAN-13 Addon 5

*Apply

101277

Do Not Apply

101276

Enter Setup

Character Substitution for French Pharmacode

*Apply

101245

Do Not Apply

101244

Character Substitution for Italian Pharmacode

*Apply

101243

Do Not Apply

101242

Character Substitution for Industrial 25

*Apply

101247

Do Not Apply

101246

Character Substitution for Interleaved 25

*Apply

101249

Do Not Apply

101248

Character Substitution for Matrix 25

*Apply

101251

Do Not Apply

101250

Character Substitution for MSI

*Apply

101285

Do Not Apply

101284

Update

Character Substitution for Plessey

*Apply

101287

Do Not Apply

101286

Character Substitution for RSS Family

*Apply

101291

Do Not Apply

101290

Character Substitution for Telepen

*Apply

101289

Do Not Apply

101288

Character Substitution for UPC-A (No Addon)

*Apply

101279

Do Not Apply

101278

Character Substitution for UPC-A Addon 2

*Apply

101281

Do Not Apply

101280

Character Substitution for UPC-A Addon 5

*Apply

101283

Do Not Apply

101282

Enter Setup

Character Substitution for UPC-E (No Addon)

*Apply

101261

Do Not Apply

101260

Character Substitution for UPC-E Addon 2

*Apply

101263

Do Not Apply

101262

Character Substitution for UPC-E Addon 5

*Apply

101265

Do Not Apply

101264

Update

4.3 PREFIX/SUFFIX CODE

By default, there is no prefix code, and [ENTER] or [CR] (Carriage Return) is configured to be suffix code. Up to 8 characters can be configured, for example, "Barcode_", and you will have the string appear in front of the barcode read, like this – "Barcode_1234567890".

- If "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

Key Type		Key Status
Scan Code	Up to 4 scan code values are allowed.	N/A
Normal Key	Up to 8 character strings are allowed. ▸ Default setting	▸ Add Shift ▸ Add Left Ctrl ▸ Add Left Alt ▸ Add Right Ctrl ▸ Add Right Alt ▸ Add Break For example, read labels for [Add Shift], [A], [Add Shift], and [B].

Configure Prefix

Configure Suffix

1) Read the label above to apply prefix code or suffix code separately, and follow steps 2~3. (Max. 8 characters each)
2) Read the "Hexadecimal Value" label on page 138 for the desired character string. For example, read "2" and "B" for the scanner to prefix or suffix the character [+].
3) Read the "Validate" label to complete this setting.

Enter Setup

4.4 CODE ID

Up to two characters for Code ID can be configured for each symbology. To make the Code ID configuration easier, the scanner provides five pre-defined Code ID sets that you can select one and make necessary changes on it.

- If "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

Key Type		Key Status
Scan Code	Up to 1 scan code values are allowed.	N/A
Normal Key	Up to 2 character strings are allowed. ▸ Default setting	▸ Add Shift ▸ Add Left Ctrl ▸ Add Left Alt ▸ Add Right Ctrl ▸ Add Right Alt ▸ Add Break For example, read labels for [Add Shift] and the character [A].

Note: "]C1" is the Code ID of EAN-128 barcodes; "]e0" is the default Code ID of RSS barcodes.

4.4.1 SELECT PRE-DEFINED CODE ID

Code ID options	Set 1	Set 2	Set 3	Set 4	Set 5
Code 39	A	C	Y	M	A
Italian Pharmacode	A	C	Y	M	A
French Pharmacode	A	C	Y	M	A
Industrial 25	C	H	H	H	S
Interleaved 25	D	I	Z	I	S
Matrix 25	E	G	G	G	S
Codabar	F	N	X	N	F
Code 93	I	L	L	L	G
Code 128	H	K	K	K	C
UPC-E	S	E	C	E	E
EAN-8	P	B	B	FF	E
EAN-13	M	A	A	F	E

UPC-A	J	A	A	A	E
MSI	V	V	D	P	M
Plessey	W	W	E	Q	P
Telepen	Z	---	---	---	---

Apply Code ID Set 1

Apply Code ID Set 2

Apply Code ID Set 3

Apply Code ID Set 4

Apply Code ID Set 5

4.4.2 CHANGE CODE ID

1) Read the label of a specific symbology below to change its code ID.
2) Read the "Hexadecimal Value" label on page 138 for the desired character string. For example, read "4" and "4" for applying the character [D] for Code ID.
3) Read the "Validate" label to complete this setting.

Enter Setup

Configure Code ID for Codabar

101456

Configure Code ID for Code 39

101450

Configure Code ID for Code 93

101457

Configure Code ID for Code 128

101458

Configure Code ID for EAN-8

101460

Configure Code ID for EAN-13

101461

Configure Code ID for French Pharmacode

101452

Configure Code ID for Italian Pharmacode

101451

Configure Code ID for Industrial 25

101453

Configure Code ID for Interleaved 25

101454

Update

Configure Code ID for Matrix 25

101455

Configure Code ID for MSI

101463

Configure Code ID for Plessey

101464

Configure Code ID for Telepen

101465

Configure Code ID for UPC-A

101462

Configure Code ID for UPC-E

101459

4.4.3 CLEAR CODE ID SETTINGS

Clear All Code ID Settings

109960

Enter Setup

4.5 LENGTH CODE

A two-digit code representing the length of barcode data (character count) can be inserted in front of data being transmitted. Such "Length" code can be individually enabled or disabled for each symbology.

Length Code for Codabar

Apply

101413

*Do Not Apply

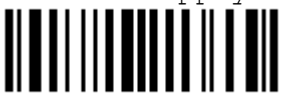
101412

Length Code for Code 39

Apply

101401

*Do Not Apply



101400

Length Code for Code 93

Apply

101415

*Do Not Apply

101414

Length Code for Code 128

Apply

101417

*Do Not Apply

101416

Length Code for EAN-128 & RSS

Apply

101419

*Do Not Apply

101418

Length Code for EAN-8

Apply

101423

*Do Not Apply

101422

Update

Length Code for EAN-13

Apply

101425

*Do Not Apply

101424

Length Code for French Pharmacode

Apply

101405

*Do Not Apply

101404

Length Code for Italian Pharmacode

Apply

101403

*Do Not Apply

101402

Length Code for Industrial 25

Apply

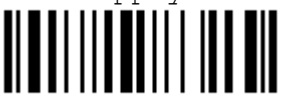
101407

*Do Not Apply

101406

Length Code for Interleaved 25

Apply



101409

*Do Not Apply

101408

Length Code for Matrix 25

Apply

101411

*Do Not Apply

101410

Length Code for MSI

Apply

101429

*Do Not Apply

101428

Enter Setup

Length Code for Plessey

Apply

101431

*Do Not Apply

101430

Length Code for Telepen

Apply

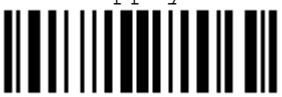
101433

*Do Not Apply

101432

Length Code for UPC-A

Apply



101427

*Do Not Apply

101426

Length Code for UPC-E

Apply

101421

*Do Not Apply

101420

Update

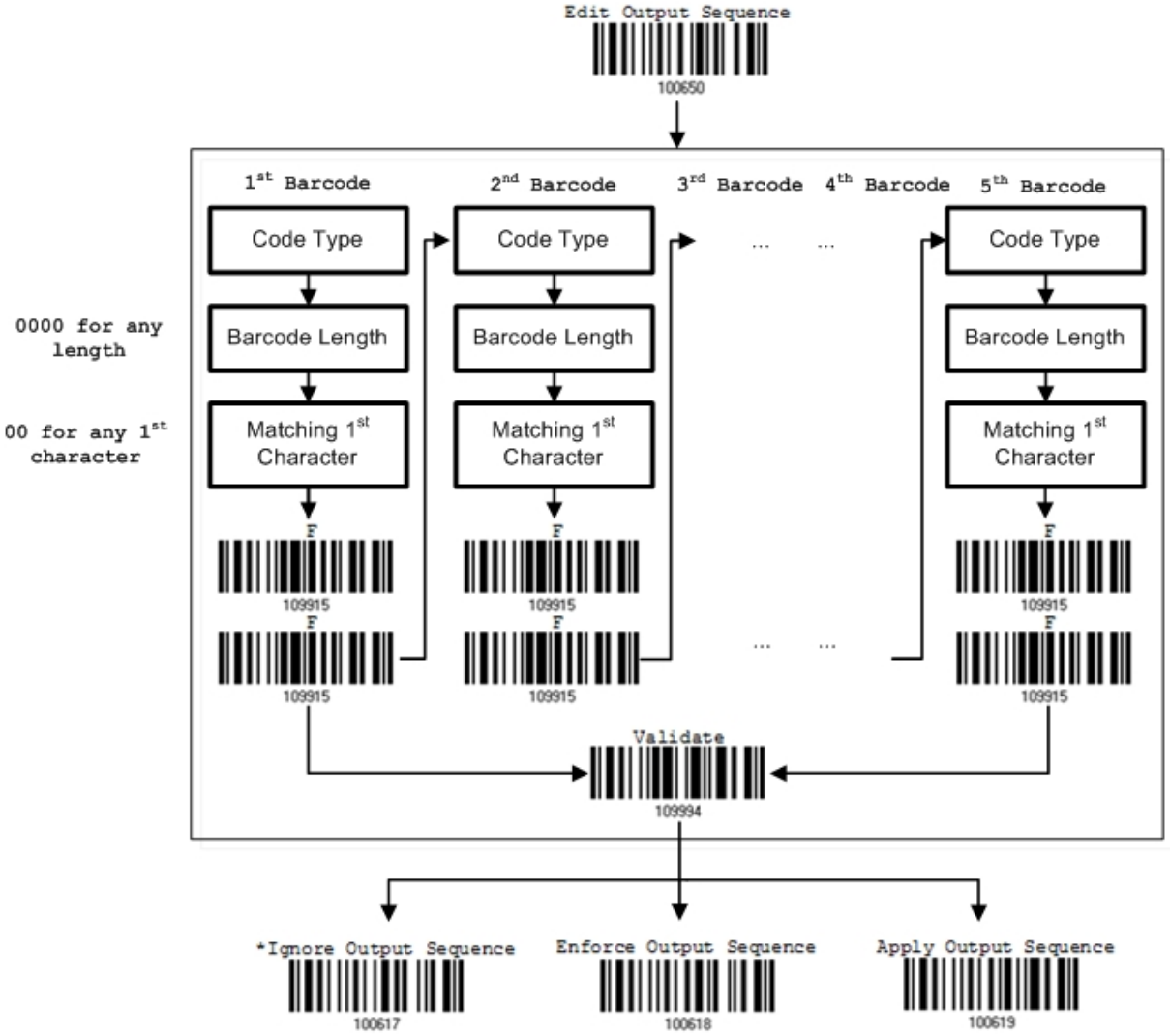
4.6 MULTI-BARCODE EDITOR

The Multi-Barcode Editor allows you to decide the output sequence of a concatenation of barcodes. Up to five barcodes can be specified. When you enable this mode, it will force the scanner to apply Laser mode as the scan mode.

Note: The Multi-Barcode Editor has nothing to do with Multi-Barcode Mode.

The barcodes that are found meeting the specified criteria below will be arranged in the desired sequence.

- Code Type
- 4-digit barcode length, excluding prefix, suffix, length code, etc.
- Matching the first character of barcode data



Enter Setup

4.6.1 EDIT A CONCATENATION OF BARCODES

Edit Output Sequence

100650

1) Read the label above to start editing a concatenation of barcodes.

2) Code Type setting – read the "Hexadecimal Value" label on page 138 for Code Type of the (first) barcode. For example, read "4" and "1" for Code 39.

Code Type	Symbology	Code Type	Symbology
41 (A)	Code 39	4F (O)	EAN-8 with Addon 5
42 (B)	Italian Pharmacode	50 (P)	EAN-13
43 (C)	French Pharmacode)	51 (Q)	EAN-13 with Addon 2
44 (D)	Industrial 25	52 (R)	EAN-13 with Addon 5
45 (E)	Interleaved 25	53 (S)	MSI
46 (F)	Matrix 25	54 (T)	Plessey
47 (G)	Codabar (NW7)	55 (U)	EAN-128
48 (H)	Code 93	56 (V)	UPC-A
49 (I)	Code 128	57 (W)	UPC-A with Addon 2
4A (J)	UPC-E0 / UPC-E1	58 (X)	UPC-A with Addon 5
4B (K)	UPC-E with Addon 2		
4C (L)	UPC-E with Addon 5	5A (Z)	Telepen
4D (M)	EAN-8	5B ([ )	RSS-14
4E (N)	EAN-8 with Addon 2		

3) Barcode Length setting – read the "Decimal Value" label on page 137 for the 4-digit length of the (first) barcode. For example, read "0065" for barcode length of 65 characters or read "0000" for any length.

Note: If not reading 0000 for any length, the 4-digit length must exclude prefix, suffix (0x0d by default), length code, etc.

4) Matching Character setting – read the "Hexadecimal Value" label on page 138 for the 1st character that must be found matching in the (first) barcode. For example, read "4" and "1" for matching character "A" as the first character in the barcode or read "00" for any character.

5) Read twice the "F" label on page 138 ("FF") to complete the setting of each barcode.

6) Read the "Validate" label to end the editing of the barcode set.

Update

4.6.2 ACTIVATE THE CONCATENATION OF BARCODES

By default, the output sequence editing of the concatenation of barcodes is not applied.

When "Enforce Output Sequence" is enabled, all barcodes read by the scanner must meet with the criteria for the concatenation. If data is found excluded from all output sequence sets (= not meeting with the criteria), the scanner will not accept the reading, and therefore, data will not be transmitted.

When "Apply Output Sequence" is enabled, only barcodes found meeting with the criteria are counted for the concatenation. Those found not meeting with the criteria are processed normally and individually.

*Ignore Output Sequence

Enforce Output Sequence

Apply Output Sequence

Warning:	When you disable the Multi-Barcode Editor later, the scan mode remains unchanged. If Laser mode is not desired, proceed to select a scan mode best suits your application.

Enter Setup

Chapter 5

APPLYING FORMATS FOR DATA EDITING

The scanner allows advanced data editing by applying user-configured editing formats. The whole processed data can be divided into fields by user-specified rules. These fields together with the user-configurable additional fields consist of the data actually sent to the host computer.

[Prefix Code]	[Code ID]	[Length Code]	[Data]	[Suffix Code]	Additional Field(s)
None by default	None by default	None by default	Barcode itself	0x0d by default	

IN THIS CHAPTER

5.1 Format Selection 108
5.2 Editing Format.....110
5.3 Programming Examples 126

5.1 FORMAT SELECTION

5.1.1 ACTIVATE EDITING FORMATS

If you have already configured any editing format before, you may directly apply the editing format. If not, you must start with configuring an editing format first, and then, activate the editing format when it is desired in use.

Editing Format 1

Enable Format 1

101301

*Disable Format 1

101300

Editing Format 2

Enable Format 2

101303

*Disable Format 2

101302

Editing Format 3

Enable Format 3

101305

*Disable Format 3

101304

End Programming Format

Editing Format 4

Enable Format 4

101307

*Disable Format 4

101306

Editing Format 5

Enable Format 5

101309

*Disable Format 5

101308

5.1.2 EXCLUSIVE DATA EDITING

By default, only barcodes found meeting with the criteria are processed by the editing formats. Those found not meeting with the criteria are processed normally.

When "Exclusive Data Editing" is enabled, all barcodes read by the scanner must be processed by the editing formats. If data is found excluded from all enabled editing formats (= not meeting with the specified criteria), the scanner will not accept the reading, and therefore, data will not be transmitted.

Yes

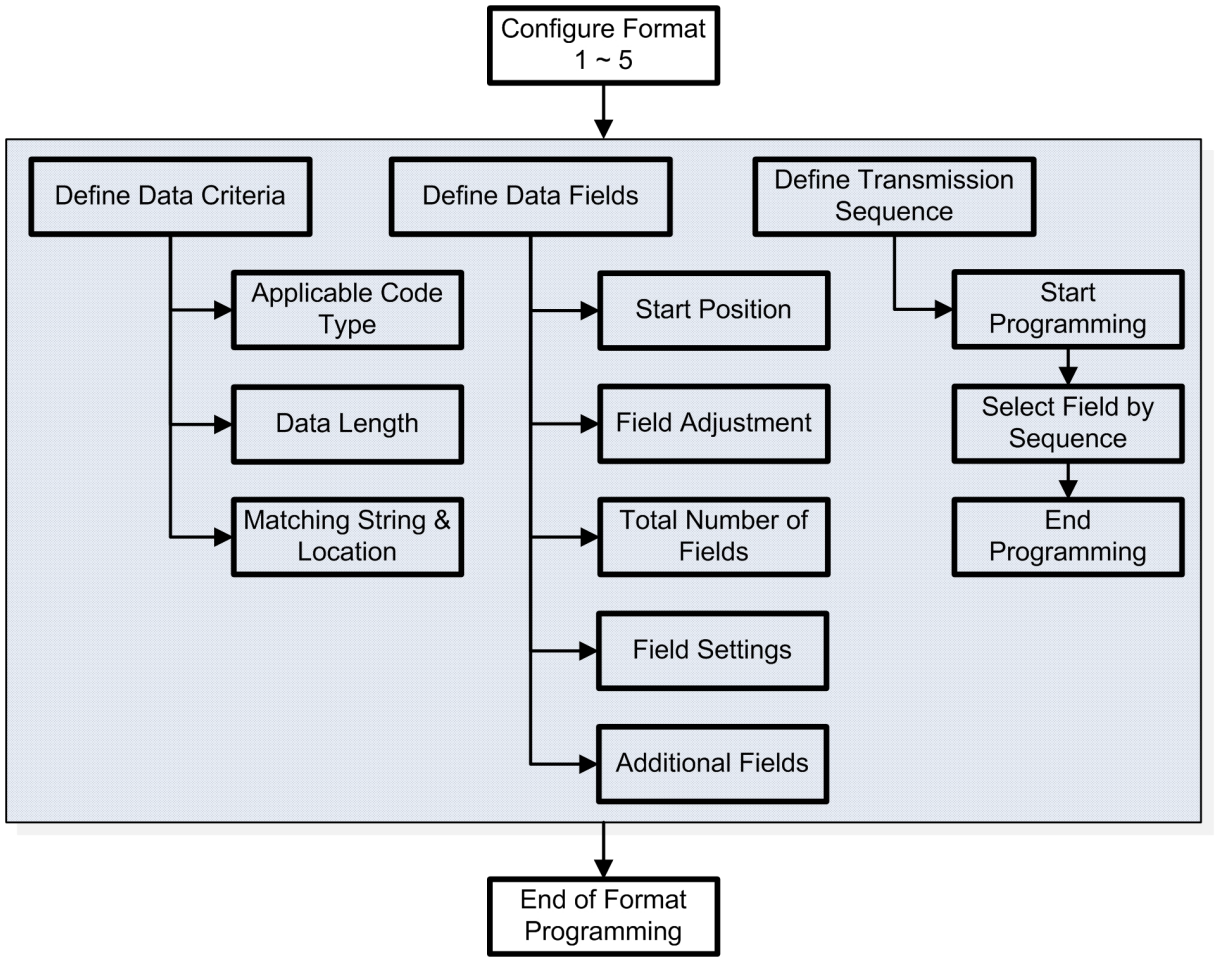
101201

*No

101200

Update

5.2 EDITING FORMAT



End Programming Format

5.2.1 SELECT FORMAT TO CONFIGURE

Start Programming Format

Select one editing format (Format 1~5) and the parameters pertaining to the editing format can then be configured – applicable code type, data length, matching string & location, total number of fields, field settings (field-dividing rule), additional fields, and field transmission sequence.

- Up to five different formats can be specified.

Configure Format 1

109981

Configure Format 2

109982

Configure Format 3

109983

Configure Format 4

109984

Configure Format 5

109985

Note: Before you complete the programming of an editing format, if you have the scanner read any label for parameters other than those pertaining to the editing format, it will automatically abort the programming process.

End Programming Format

After having configured all the desired parameters, you must have the scanner read the "End Programming Format" label, which can be located at the bottom of every even page in this chapter.

End Programming Format

109980

Update

5.2.2 RESTORE DEFAULT FORMAT

You may select an existing editing format and have the defaults restored. The default settings of an editing format are listed below.

Editing format	Defaults
Applicable Code Type	All
Data Length	0 (No qualification.)
Matching String	Disable
Matching String Location	None
Total Number of Fields	1
Field Setting – field-dividing rule	Not configured.
Additional Fields	None
Field Transmission Sequence	F1

Restore Default Format

End Programming Format

5.2.3 DEFINE DATA CRITERIA

Three applicable conditions can be configured to check whether the data read by the scanner can be processed by the particular editing format.

Note: Data editing cannot be performed unless the three conditions are all met.

Applicable Code Type

By default, barcodes of all the supported symbologies will be processed by any editing format, if having been configured and enabled.

*Apply to All

109992

Clear All

109991

Codabar

101513

Code 39

101501

Code 93

101515

Code 128

101517

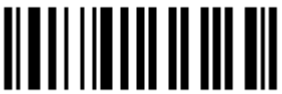
EAN-8

101527

EAN-8 Addon 2

101529

EAN-8 Addon 5



101531

EAN-13

101533

EAN-13 Addon 2

101535

EAN-13 Addon 5

101537

Update

EAN-128 & RSS

101519

French Pharmacode

101505

Italian Pharmacode

101503

Industrial 25

101507

Interleaved 25

101509

Matrix 25

101511

MSI

101545

Plessey

101547

Telepen

101549

UPC-A

101539

UPC-A Addon 2

101541

UPC-A Addon 5

101543

UPC-E

101521

UPC-E Addon 2

101523

UPC-E Addon 5

101525

Data Length

The length must include prefix, suffix (0x0d by default), length code, etc. By default, barcodes of any length (character count) are eligible for data editing.

End Programming Format

- You may specify a value from 0 to 254.
- When zero is given to both, the scanner will not perform the length qualification.

1. Read the label below to specify Max. Length or Min. Length separately, and follow steps 2~3.

Max. Length

101561

Min. Length

101560

2. Read the "Decimal Value" label on page 137 for the desired length.
3. Read the "Validate" label on the same page to complete this setting.

Matching String & Location

By default, no matching string is specified, and therefore, it is disabled. You may enable this feature by specifying a matching string; up to four characters are allowed.

- When the Matching String Location is zero, the scanner will only check for the existence of the matching string in the barcode data.
- You may specify a value from 1 to 254 to indicate where the matching string starts in the barcode data.

1. Read the label to specify a matching string.

Matching String …

101562

2. Read the "Hexadecimal Value" label on page 138 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the label to specify the location of the matching string.

Location of
Matching String …

101563

5. Read the "Decimal Value" label on page 137 for the desired location.
6. Read the "Validate" label on the same page to complete this setting.

Update

5.2.4 DIVIDE DATA INTO FIELDS

Start Position

Data can be divided into fields in one of the following direction –

- from head (F1) to tail (F5)
- from tail (F1) to head (F5)

*From Head

101600

From Tail

101601

Field Adjustment

You may apply equal length to all fields, if necessary. It will add "Space" (0x20) to field when data is found shorter than specified.

*No Adjustment

101602

Set Length to adjust fields … (*0)

101603

1. Read the label above to adjust field by length.
2. Read the "Decimal Value" label on page 137 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

Total Number of Fields

Data can be divided into at most 6 fields; each of them is numbered from F1 to F6 accordingly. However, only F1~F5 can be configured.

- The total number of fields must be specified correctly. If three fields are configured for the editing format, the data characters after F3 will be assigned to F4 automatically. This feature is quite useful especially when data of variable lengths is processed by editing formats.

*One Field

101590

End Programming Format

Two Fields

101591

Three Fields

101592

Four Fields

101593

Five Fields

101594

Six Fields

101595

Note: The number of configurable fields is always one less than the total number of fields specified. The extra data characters beyond the last field configured will be automatically assigned to the next field.

Update

5.2.5 FIELD SETTINGS

Data eligible for editing formats is divided into fields by user-specified rules – either using the field terminating string or specified field length.

By Terminating String
Specify the field terminating string. Up to two characters are allowed. The scanner will search for the occurrence of this particular string in the data. ▸ By default, this string will be included in the field. You may discard it.
By Length
Alternatively, you may simply specify the field length. The scanner will assign the next specified number of characters into the field.

Field 1 Setting

Select Field Separator
to Divide Field 1 …

101567

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 138 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101565

Discard Separator

101564

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 1 by Length …

101566

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 137 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

End Programming Format

Field 2 Setting

Select Field Separator
to Divide Field 2 …

101571

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 138 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101569

Discard Separator

101568

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 2 by Length …

101570

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 137 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

Update

Field 3 Setting

Select Field Separator
to Divide Field 3 …

101575

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 138 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101573

Discard Separator

101572

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 3 by Length …

101574

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 137 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

End Programming Format

Field 4 Setting

Select Field Separator
to Divide Field 4 …

101579

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 138 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101577

Discard Separator

101576

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 4 by Length …

101578

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 137 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

Update

Field 5 Setting

Select Field Separator
to Divide Field 5 …

101583

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 138 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101581

Discard Separator

101580

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 5 by Length …

101582

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 137 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

End Programming Format

Additional Fields

Up to five additional fields can be created for each editing format; each of them is numbered from AF1 to AF5 accordingly.

1. Read the label below to specify an additional field, one at a time.
2. Read the "Hexadecimal Value" label on page 138 for the desired additional field.
3. Read the "Validate" label to complete this setting.

Additional Field 1 …

101584

Additional Field 2 …

101585

Additional Field 3 …

101586

Additional Field 4 …

101587

Additional Field 5 …

101588

- If "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

Key Type		Key Status
Scan Code	Up to 2 scan code values are allowed.	N/A
Normal Key	Up to 4 character strings are allowed. ▸ Default setting	▸ Add Shift ▸ Add Left Ctrl ▸ Add Left Alt ▸ Add Right Ctrl ▸ Add Right Alt ▸ Add Break For example, read labels for [Add Shift], [A], [Add Shift], and [B].

Update

5.2.6 FIELD TRANSMISSION SEQUENCE

After configuring the data fields and additional fields, you must now program the transmission sequence of these fields that comprise the final data. This field transmission sequence can be assigned in any desired order and fields can be assigned multiple times as well.

Note: Up to twelve fields can be assigned.

1) Read the "Start" label to begin with programming the field transmission sequence.

Start (Programming) …

101589

2) Program the transmission sequence by reading the desired fields as well as additional fields.

Field 1

109901

Field 2

109902

Field 3

109903

Field 4

109904

Field 5

109905

Field 6

109906

Additional Field 1

109907

Additional Field 2

109908

Additional Field 3

109909

Additional Field 4

109910

Additional Field 5

109911

End Programming Format

3) Read the "End" label to complete this setting.

End

109994

Update

5.3 PROGRAMMING EXAMPLES

5.3.1 EXAMPLE I

Extract data from the 10th character to the 19th character...

The editing format should be configured as follows:

1. Read the "Enter Setup" label to enter the Configuration Mode.
2. Read the "Configure Format 1" label.
3. Read the "Clear All" and "Code 128" labels for applicable code type.
4. Read the "Three Fields" label.
5. Read the "Divide Field 1 by Length" label, and set length to 9.
   Field 1 data starts from the 1st character to the 9th character.
6. Read the "Divide Field 2 by Length" label, and set length to 10.
   Field 2 data starts from the 10th character to the 19th character.
7. Read the "Start (Programming)" label to program the transmission sequence.
8. Read the "Field 2" label.
9. Read the "End" label to complete the transmission sequence setting.
10. Read the "End Programming Format" label to complete the setting of Editing Format 1.
11. Read the "Enable Format 1" label to apply Editing Format 1 to Code 128.
12. Read the "Update" label to exit the Configuration Mode.

End Programming Format

5.3.2 EXAMPLE II

Extract the date code, item number, and quantity information from barcodes.

Data in a barcode is encoded like this:

- From the 1st character to the 6th character is the date code.
- From the 7th character to the dash '-' character is the item number.
- After the dash '-' character is the quantity information.

Data will be transmitted like this:

- The item number goes first, then a TAB character, followed by the date code, then another TAB character, and finally the quantity information.

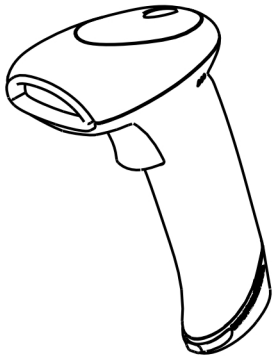
The editing format should be configured as follows:

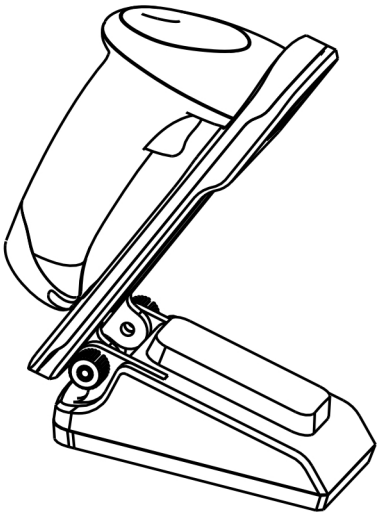
1. Read the "Enter Setup" label to enter the Configuration Mode.
2. Read the "Configure Format 2" label.
3. Read the "Three Fields" label.
4. Read the "Divide Field 1 by Length" label, and set length to 6.
   Field 1 data starts from the 1st character to the 6th character.
5. Read the "Select Field Separator to Divide Field 2" label, and use a dash '-' character.
   Field 2 data starts from the 7th character until the dash '-' character is met.
6. Read the "Additional Field 1" label, and use a tab character for the field.
7. Read the "Start (Programming)" label to program the transmission sequence.
8. Read the "Field 2", "Additional Field 1", "Field 1", "Additional Field 1", "Field 3" labels.
9. Read the "End" label to complete the transmission sequence (F2 A1 F1 A1 F3) setting.
10. Read the "End Programming Format" label to complete the setting of Editing Format 1.
11. Read the "Enable Format 2" label to apply Editing Format 2 to all code types.
12. Read the "Update" label to exit the Configuration Mode.

Update

End Programming Format

SPECIFICATIONS





Optical Characteristics		1500	1502
Scan Engine		Non-contact type	Non-contact type
Optical Sensor		CCD, 2500 pixels	Laser
Light Source		Visible red LED	Visible laser diode
Wavelength		625 nm	650 nm
Physical Characteristics			
Color		Black	
Switch		Tactile switch	
Interface Options		Keyboard Wedge, RS-232, Wand Emulation	
Weight		Approx. 145 g	
Electrical Characteristics			
Voltage		+ 5V ± 5%	
Power Consumption	Standby	30 mA	
	Scanning	170 mA	
	Maximum	250 mA	

Environmental Characteristics

Temperature	Operating	0 °C to 50 °C
	Storage	-20 °C to 60 °C
Humidity (Non-condensing)	Operating	10% to 90%
	Storage	5% to 95%
Impact Resistance (Multiple drops onto concrete)		1.5 m
Electrostatic Discharge		± 15 kV air discharge, ± 8 kV contact discharge
EMC Regulation		FCC, CE, C-Tick, KCC, BSMI

Programming Support

Configuration via Setup Labels	Use setup labels or host serial commands.
Software	Windows®-based ScanMaster
Firmware upgradeable	Download firmware updates via the download utility.

Accessories (√ means "supported")

USB HID Cable (307)	√	√
USB Virtual COM Cable (308)	√	√
IBM 4683/4694 Cable (346)	√	√
Auto-Sense Stand	√	
RS-232 Cable	√	√
Keyboard Wedge Cable	√	√
Wand Emulation Cable	√	√

Enter Setup

Appendix I

UPGRADING FIRMWARE

1) Use the RS-232 cable to cconnect the scanner to the serial port of PC and join the power adaptor to the RS-232 connector.

2) Read the following labels in sequence for the scanner to enter the download mode.

   The scanner will respond with beeps to indicate it is ready for downloading.

Enter Setup

Download

109997

3) Run the download utility "ProLoad.exe" or "Download.exe" on your computer.

   (Download.exe requires version 2.3 or later!)

   Open the firmware update "*.shx", and select the correct COM port.

   - Baud rate — 115,200 bps
   - Data bit — 8
   - Parity — None
   - Flow control — None

4) The scanner will automatically restart itself when upgrading firmware is completed successfully.

Update

Enter Setup

Appendix II

HOST SERIAL COMMANDS

SERIAL COMMANDS

D

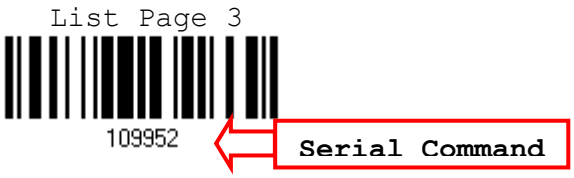
Purpose	To disable the scanner.
Remarks	"D"

E

Purpose	To enable the scanner.
Remarks	"E"

#@ nnnnnn <CR>

Purpose	To configure the scanner.
Remarks	nnnnnn – the six digits of command parameters. For example, "109952" is to list the current Code ID settings.



"0x23" + "0x40" + "0x31" + "0x30" + "0x39" + "0x39" + "0x35" + "0x32" + "0x0d"

#@----<CR>

Purpose	To halt the scanner.
Remarks	"0x23" + "0x40" + "0x2d" + "0x2d" + "0x2d" + "0x2d" + "0x0d"

#@....<CR>

Purpose	To resume operation.
Remarks	"0x23" + "0x40" + "0x2e" + "0x2e" + "0x2e" + "0x2e" + "0x0d"

#@////<CR>

Purpose	To respond with a beep.
Remarks	"0x23" + "0x40" + "0x2f" + "0x2f" + "0x2f" + "0x2f" + "0x0d"

#@TRIGOFF<CR>

Purpose	Disable software trigger
Remarks	"0x23" + "0x40" + "0x54" + "0x52" + "0x49" + "0x47" + "0x4f" + "0x46" + "0x46" + "0x0d"

#@TRIGON<CR>

Purpose	Enable software trigger
Remarks	"0x23" + "0x40" + "0x54" + "0x52" + "0x49" + "0x47" + "0x4f" + "0x4e" + "0x0d"

EXAMPLE

Send the serial commands via RS-232 interface. For example, run HyperTerminal on the host computer.

- For the scanner to stop immediately –

  D

- For the scanner to resume to work –

  E

- For the scanner to change the beeper to medium volume and beep –

  #@101011<CR>

  #@////<CR>

- For the scanner to change the beeper to minimal volume and beep –

  #@101010<CR>

  #@////<CR>

- For the scanner to change the beeper frequency to 8 kHz (for Good Read Beep only) and beep –

  #@101001<CR>

  #@////<CR>

- For the scanner to change the beeper length to longest (for Good Read Beep only) and beep –

  #@101008<CR>

  #@////<CR>

Enter Setup

Appendix III

KEYBOARD WEDGE TABLE

	0	1	2	3	4	5	6	7	8
0		F2	SP	0	@	P	`	p	⓪
1	INS	F3	!	1	A	Q	a	q	①
2	DLT	F4	"	2	B	R	b	r	②
3	Home	F5	#	3	C	S	c	s	③
4	End	F6	$	4	D	T	d	t	④
5	Up	F7	%	5	E	U	e	u	⑤
6	Down	F8	&	6	F	V	f	v	⑥
7	Left	F9	'	7	G	W	g	w	⑦
8	BS	F10	(	8	H	X	h	x	⑧
9	HT	F11	)	9	I	Y	i	y	⑨
A	LF	F12	*	:	J	Z	j	z	
B	Right	ESC	+	;	K	[	k	{	
C	PgUp	Exec	,	<	L	\	l	|	
D	CR	CR*	-	=	M	]	m	}	
E	PgDn		.	>	N	^	n	~	
F	F1		/	?	O	_	o	Dly	ENTER*

Note: (1) ⓪~⑨: Digits of numeric keypad.
(2) CR*/Send/ENTER*: ENTER key on the numeric keypad.

KEY TYPE

If "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable.

*Normal

109926

Update

Scan Code

109936

KEY STATUS

Decide whether or not to change key status when "Normal Key" is selected for Key Type.

Add Shift

109930

Add Left Ctrl

109931

Add Right Ctrl

109933

Add Left Alt

109932

Add Right Alt

109934

USER-DEFINED SCAN CODE

1) Read the "Set Scan Code" label to define new scan code.

Set Scan Code

109988

2) Read the "Hexadecimal Value" label on page 138 for the desired character string.
3) Read the "Validate" label to complete this setting.
4) Read the "Confirm" label to confirm the action.

Confirm

109989

Enter Setup

Appendix IV

NUMERAL SYSTEMS

DECIMAL SYSTEM

Decimal

0

109900

1

109901

2

109902

3

109903

4

109904

5

109905

6

109906

7

109907

8

109908

9

109909

Validate the Values

Validate

109994

Update

Abort

HEXADECIMAL SYSTEM

Hexadecimal

0

109900

1

109901

2

109902

3

109903

4

109904

5

109905

6

109906

7

109907

8

109908

9

109909

A

109910

B

109911

C

109912

D

109913

E

109914

F

109915

Enter Setup

Validate the Values

Validate

109994

ASCII TABLE

	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	
0		DLE	SP	0	@	P	`	p	
1	SOH	DC1	!	1	A	Q	a	q	
2	STX	DC2	"	2	B	R	b	r	
3	ETX	DC3	#	3	C	S	c	s	
4	EOT	DC4	$	4	D	T	d	t	
5	ENQ	NAK	%	5	E	U	e	u	
6	ACK	SYN	&	6	F	V	f	v	
7	BEL	ETB	'	7	G	W	g	w	
8	BS	CAN	(	8	H	X	h	x	
9	HT	EM	)	9	I	Y	i	y	
A	LF	SUB	*	:	J	Z	j	z	
B	VT	ESC	+	;	K	[	k	{	
C	FF	FS	,	<	L	\	l	|	
D	CR	GS	-	=	M	]	m	}	
E	SO	RS	.	>	N	^	n	~	
F	SI	US	/	?	O	_	o	DEL	

Update

Abort

Enter Setup